

Products				
PlotID	Length	Product	Plies	Net Qty
J1	20-00-00	11 7/8" NI-40x	1	8
J1DJ	20-00-00	11 7/8" NI-40x	2	4
J2	18-00-00	11 7/8" NI-40x	1	2
J3	6-00-00	11 7/8" NI-40x	1	4
J4	4-00-00	11 7/8" NI-40x	1	1
J5	2-00-00	11 7/8" NI-40x	1	2
J6	20-00-00	11 7/8" NI-80	1	61
B4	20-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B1	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B2	6-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B3	6-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1

Connector Summary		
Qty	Manuf	Product
3	H1	IUS2.56/11.88
11	H1	IUS2.56/11.88
2	H1	IUS2.56/11.88
2	H1	IUS2.56/11.88
2	H1	IUS2.56/11.88
1	H2	HUS1.81/10

CITY OF HAMILTON
Building Division
Permit No. **21-150623**
THESE STAMPED DRAWINGS SHALL BE AVAILABLE ON SITE
THE OWNER AND/OR CONTRACTOR SHALL COMPLY WITH
THE ONTARIO BUILDING CODE AND ALL OTHER APPLICABLE LAW
These drawings and/or specifications have been reviewed by
OCT 04 2021
DATE
FOR CHIEF BUILDING OFFICIAL

DATE: 2021-03-18

1st FLOOR



FROM PLAN DATED: 2021/2
BUILDER: GREENPARK HOMES
SITE: RUSSELL GARDENS PH4
MODEL: SPRINGFIELD 3
ELEVATION: 1
LOT:

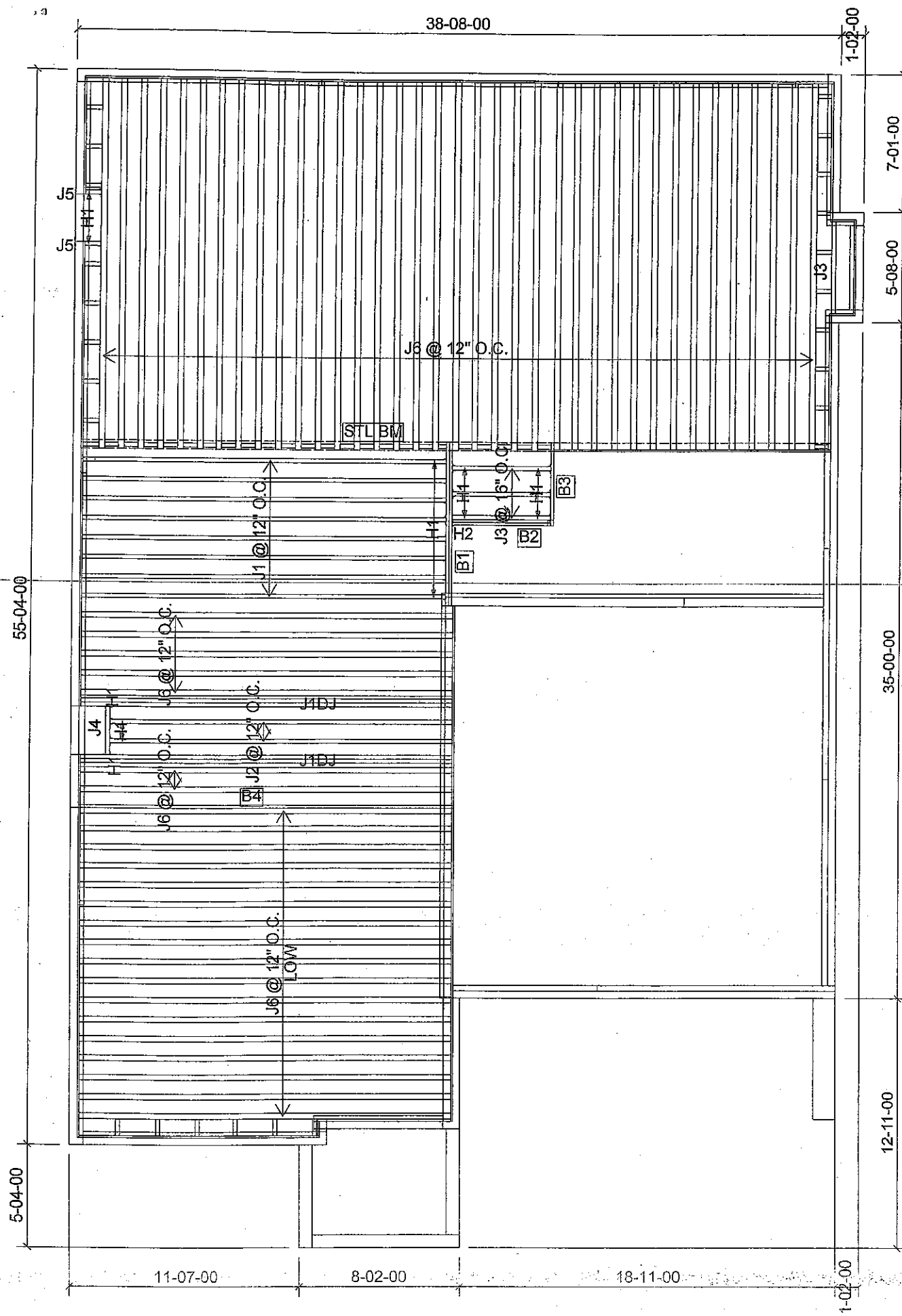
CITY: HAMILTON

SALESMAN: RICK DICIANO
DESIGNER: AJ
REVISION:

NOTES:
REFER TO THE NORDIC INSTALLATION GUIDE FOR PROPER STORAGE AND INSTALLATION.
SQUASH BLOCKS OF 2x4, 2x6, 2x8 #2 S.P. REQ'D UNDER INTERIOR UNIFORM LOAD BEARING WALLS. MULTIPLE SQUASH BLOCKS REQ'D UNDER CONCENTRATED LOADS. SEE FIGURE 1. CANTILEVERED JOISTS INCLUDING CANT' OVER BRICK RE I-JOIST BLOCKING ALONG BEARING AND RIMBOARD CLOSURE AT ENDS. SEE FIGURES 4 & 5 FOR REINFORCEMENT REQUIREMENTS. FOR HOLES INCLUDING DUCT CHASE AND FIELD CUT OPENINGS SEE FIGURE 7, TABLES 1 & 2. CERAMIC TILE APPLICATION AS PER O.B.C 9.30.6.

LOADING:
DESIGN LOADS: L/480.000
LIVE LOAD: 40.0 lb/ft²
DEAD LOAD: 15.0 lb/ft²
TILE LOAD: 20.0 lb/ft²

SUBFLOOR: 3/4" GLUED AND NAILED

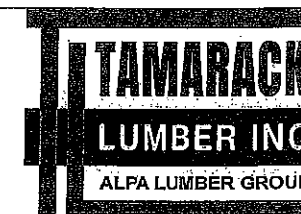


Products				
PlotID	Length	Product	Plies	Net Qty
J1	20-00-00	11 7/8" NI-40x	1	8
J1DJ	20-00-00	11 7/8" NI-40x	2	4
J2	18-00-00	11 7/8" NI-40x	1	2
J3	6-00-00	11 7/8" NI-40x	1	4
J4	4-00-00	11 7/8" NI-40x	1	1
J5	2-00-00	11 7/8" NI-40x	1	2
J6	20-00-00	11 7/8" NI-80	1	61
B4	20-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B1	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B2	6-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B3	6-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1

Connector Summary		
Qty	Manuf	Product
3	H1	IUS2.56/11.88
11	H1	IUS2.56/11.88
2	H1	IUS2.56/11.88
2	H1	IUS2.56/11.88
2	H1	IUS2.56/11.88
1	H2	HUS1.81/10

DATE: 2021-03-18

1st FLOOR OPT GUEST
SUITE



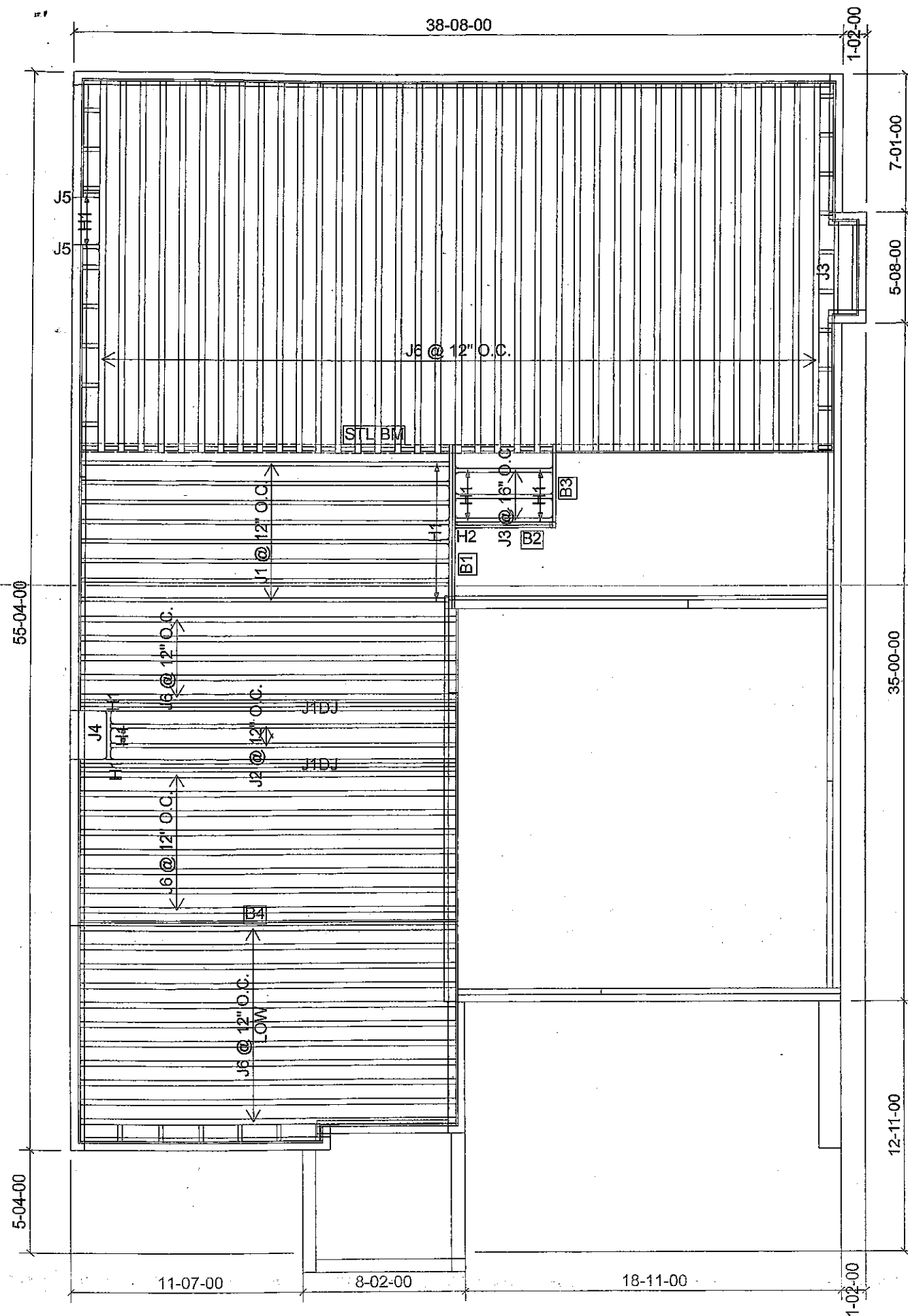
FROM PLAN DATED: 2021/2
BUILDER: GREENPARK HOMES
SITE: RUSSELL GARDENS PH4
MODEL: SPRINGFIELD 3
ELEVATION: 1
LOT:
CITY: HAMILTON

SALESMAN: RICK DICIANO
DESIGNER: AJ
REVISION:

NOTES:
REFER TO THE **NORDIC INSTALLATION**
GUIDE FOR PROPER STORAGE AND
INSTALLATION.
SQUASH BLOCKS OF 2x4, 2x6, 2x8 #2 S.F
REQ'D UNDER INTERIOR UNIFORM LOAD
BEARING WALLS. **MULTIPLE SQUASH**
BLOCKS REQ'D UNDER CONCENTRATED
LOADS. SEE FIGURE 1. **CANTILEVERED**
JOISTS INCLUDING **CANT' OVER BRICK F**
I-JOIST BLOCKING ALONG BEARING AND
RIMBOARD CLOSURE AT ENDS. SEE
FIGURES 4 & 5 FOR REINFORCEMENT
REQUIREMENTS. FOR **HOLES** INCLUDING
DUCT CHASE AND **FIELD CUT OPENINGS**
SEE FIGURE 7, TABLES 1 & 2. **CERAMIC**
APPLICATION AS PER O.B.C 9.30.6.

LOADING:
DESIGN LOADS: L/480.000
LIVE LOAD: 40.0 lb/ft²
DEAD LOAD: 15.0 lb/ft²
TILE LOAD: 20.0 lb/ft²

SUBFLOOR: 3/4" GLUED AND NAILED

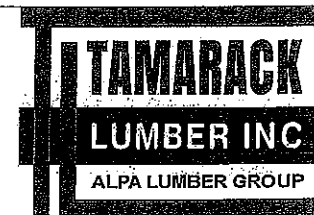


Products				
PlotID	Length	Product	Plies	Net Qty
J1	20-00-00	11 7/8" NI-40x	1	8
J1DJ	20-00-00	11 7/8" NI-40x	2	4
J2	18-00-00	11 7/8" NI-40x	1	2
J3	6-00-00	11 7/8" NI-40x	1	4
J4	4-00-00	11 7/8" NI-40x	1	1
J5	2-00-00	11 7/8" NI-40x	1	2
J6	20-00-00	11 7/8" NI-80	1	61
B4	20-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B1	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B2	6-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B3	6-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1

Connector Summary		
Qty	Manuf	Product
3	H1	IUS2.56/11.88
11	H1	IUS2.56/11.88
2	H1	IUS2.56/11.88
2	H1	IUS2.56/11.88
2	H1	IUS2.56/11.88
1	H2	HUS1.81/10

DATE: 2021-03-18

1st FLOOR



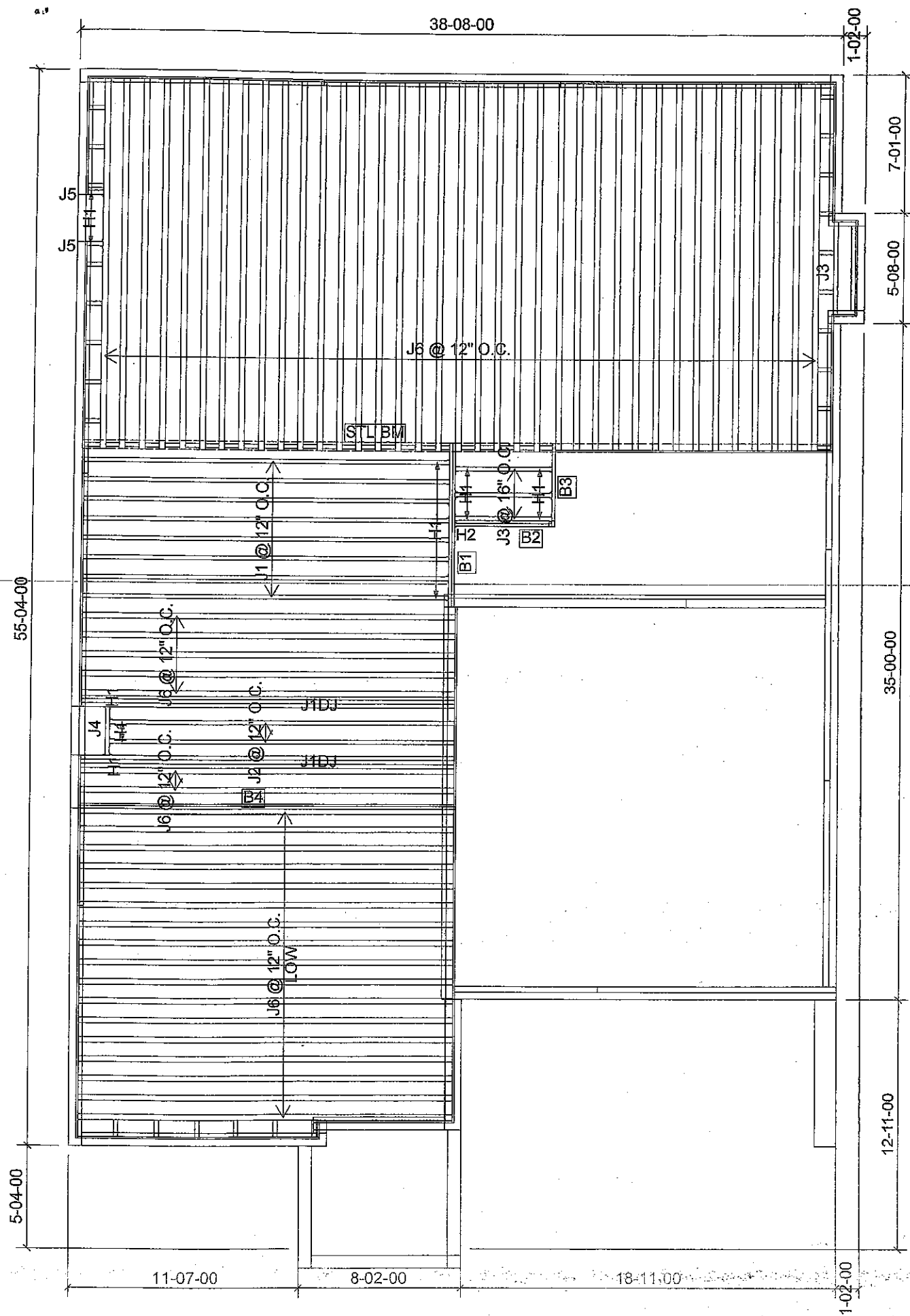
FROM PLAN DATED: 2021/2
BUILDER: GREENPARK HOMES
SITE: RUSSELL GARDENS PH4
MODEL: SPRINGFIELD 3
ELEVATION: 2
LOT:
CITY: HAMILTON

SALESMAN: RICK DICIANO
DESIGNER: AJ
REVISION:

NOTES:
REFER TO THE **NORDIC INSTALLATION**
GUIDE FOR PROPER STORAGE AND
INSTALLATION.
SQUASH BLOCKS OF 2x4, 2x6, 2x8 #2 S.F
REQ'D UNDER INTERIOR UNIFORM LOAD
BEARING WALLS. **MULTIPLE SQUASH**
BLOCKS REQ'D UNDER CONCENTRATED
LOADS. SEE FIGURE 1. **CANTILEVERED**
JOISTS INCLUDING **CANT' OVER BRICK F**
I-JOIST BLOCKING ALONG BEARING AND
RIMBOARD CLOSURE AT ENDS. SEE
FIGURES 4 & 5 FOR REINFORCEMENT
REQUIREMENTS. FOR **HOLES** INCLUDING
DUCT CHASE AND **FIELD CUT OPENINGS**
SEE FIGURE 7, TABLES 1 & 2. **CERAMIC**
APPLICATION AS PER O.B.C 9.30.6.

LOADING:
DESIGN LOADS: L/480.000
LIVE LOAD: 40.0 lb/ft²
DEAD LOAD: 15.0 lb/ft²
TILE LOAD: 20.0 lb/ft²

SUBFLOOR: 3/4" GLUED AND NAILED

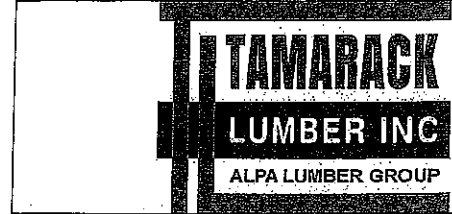


Products				
PlotID	Length	Product	Plies	Net Qty
J1	20-00-00	11 7/8" NI-40x	1	8
J1DJ	20-00-00	11 7/8" NI-40x	2	4
J2	18-00-00	11 7/8" NI-40x	1	2
J3	6-00-00	11 7/8" NI-40x	1	4
J4	4-00-00	11 7/8" NI-40x	1	1
J5	2-00-00	11 7/8" NI-40x	1	2
J6	20-00-00	11 7/8" NI-80	1	61
B4	20-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B1	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B2	6-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B3	6-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1

Connector Summary		
Qty	Manuf	Product
3	H1	IUS2.56/11.88
11	H1	IUS2.56/11.88
2	H1	IUS2.56/11.88
2	H1	IUS2.56/11.88
1	H2	HUS1.81/10

DATE: 2021-03-18

1st FLOOR OPT GUEST
SUITE



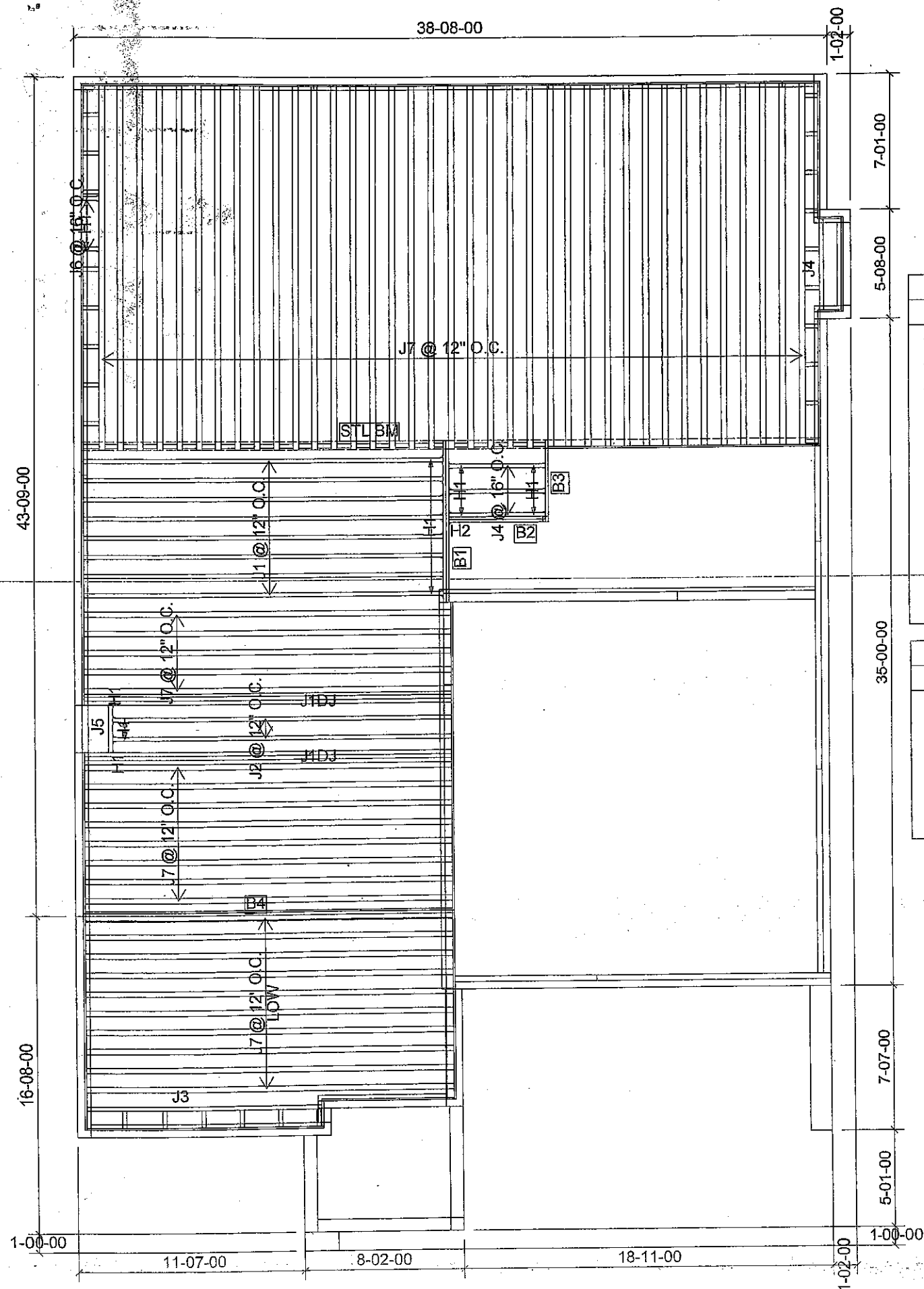
FROM PLAN DATED: 2021/2
BUILDER: GREENPARK HOMES
SITE: RUSSELL GARDENS PH4
MODEL: SPRINGFIELD 3
ELEVATION: 2
LOT:
CITY: HAMILTON

SALESMAN: RICK DICIANO
DESIGNER: AJ
REVISION:

NOTES:
REFER TO THE NORDIC INSTALLATION
GUIDE FOR PROPER STORAGE AND
INSTALLATION.
SQUASH BLOCKS OF 2x4, 2x6, 2x8 #2 S.F
REQ'D UNDER INTERIOR UNIFORM LOAD
BEARING WALLS. MULTIPLE SQUASH
BLOCKS REQ'D UNDER CONCENTRATED
LOADS. SEE FIGURE 1. CANTILEVERED
JOISTS INCLUDING CANT' OVER BRICK R
I-JOIST BLOCKING ALONG BEARING AND
RIMBOARD CLOSURE AT ENDS. SEE
FIGURES 4 & 5 FOR REINFORCEMENT
REQUIREMENTS. FOR HOLES INCLUDING
DUCT CHASE AND FIELD CUT OPENINGS
SEE FIGURE 7, TABLES 1 & 2. CERAMIC 1
APPLICATION AS PER O.B.C 9.30.6.

LOADING:
DESIGN LOADS: L/480.000
LIVE LOAD: 40.0 lb/ft²
DEAD LOAD: 15.0 lb/ft²
TILE LOAD: 20.0 lb/ft²

SUBFLOOR: 3/4" GLUED AND NAILED

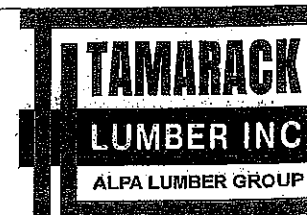


Products				
PlotID	Length	Product	Plies	Net Qty
J1	20-00-00	11 7/8" NI-40x	1	8
J1DJ	20-00-00	11 7/8" NI-40x	2	4
J2	18-00-00	11 7/8" NI-40x	1	2
J3	14-00-00	11 7/8" NI-40x	1	1
J4	6-00-00	11 7/8" NI-40x	1	4
J5	4-00-00	11 7/8" NI-40x	1	1
J6	2-00-00	11 7/8" NI-40x	1	2
J7	20-00-00	11 7/8" NI-80	1	60
B4	20-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B1	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B2	6-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B3	6-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1

Connector Summary		
Qty	Manuf	Product
3	H1	IUS2.56/11.88
11	H1	IUS2.56/11.88
2	H1	IUS2.56/11.88
2	H1	IUS2.56/11.88
2	H1	IUS2.56/11.88
1	H2	HUS1.81/10

DATE: 2021-03-18

1st FLOOR



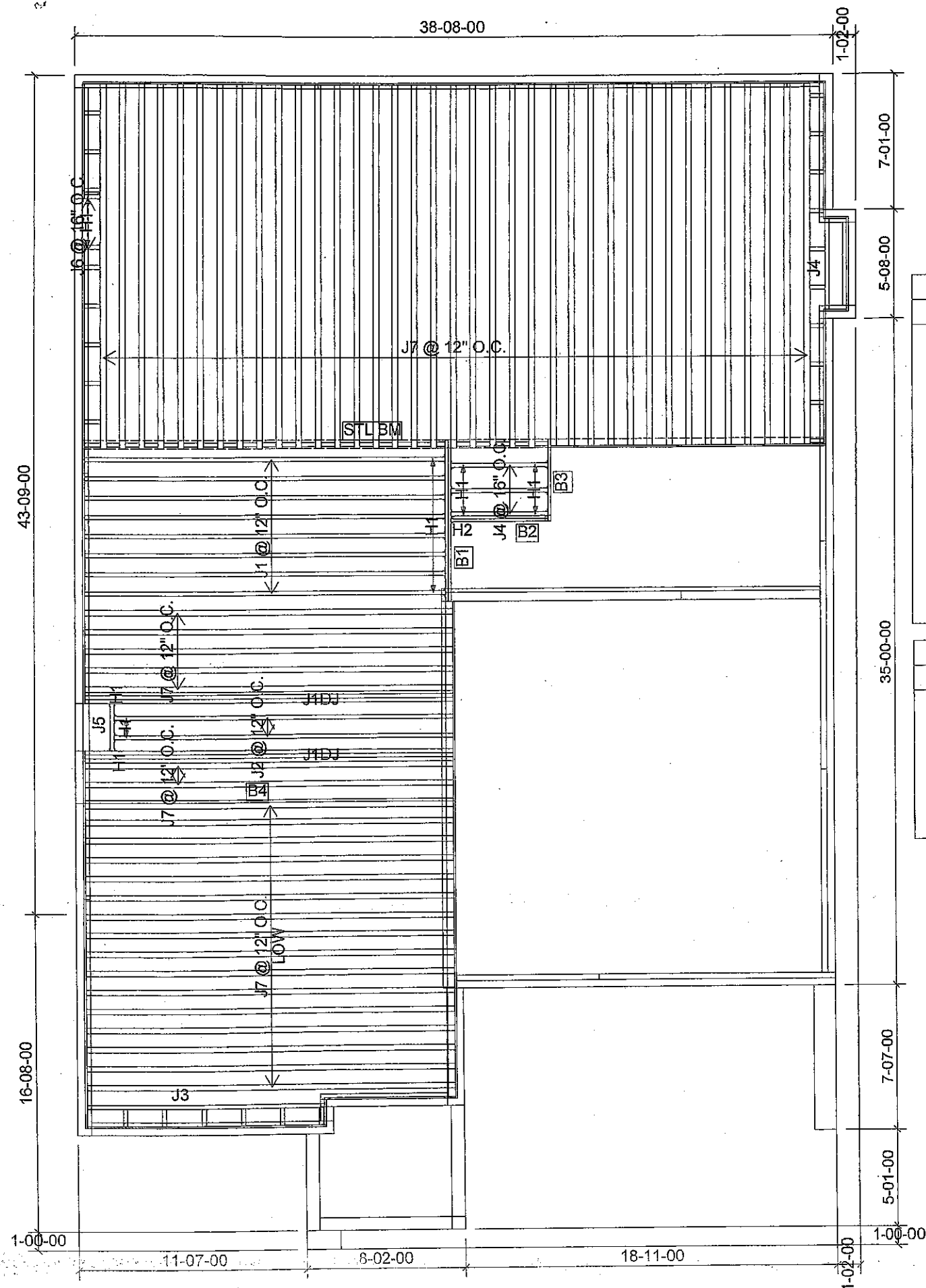
FROM PLAN DATED: 2021/2
 BUILDER: GREENPARK HOMES
 SITE: RUSSELL GARDENS PH4
 MODEL: SPRINGFIELD 3
 ELEVATION: 3
 LOT:
 CITY: HAMILTON

SALESMAN: RICK DICIANO
 DESIGNER: AJ
 REVISION:

NOTES:
 REFER TO THE **NORDIC INSTALLATION** GUIDE FOR PROPER STORAGE AND INSTALLATION.
SQUASH BLOCKS OF 2x4, 2x6, 2x8 #2 S.I REQ'D UNDER INTERIOR UNIFORM LOAD BEARING WALLS. **MULTIPLE SQUASH BLOCKS** REQ'D UNDER CONCENTRATED LOADS. SEE FIGURE 1. **CANTILEVERED JOISTS** INCLUDING CANT' OVER BRICK I-JOIST BLOCKING ALONG BEARING AND RIMBOARD CLOSURE AT ENDS. SEE FIGURES 4 & 5 FOR REINFORCEMENT REQUIREMENTS. FOR **HOLES** INCLUDING **DUCT CHASE** AND **FIELD CUT OPENINGS** SEE FIGURE 7, TABLES 1 & 2. **CERAMIC** APPLICATION AS PER O.B.C 9.30.6.

LOADING:
 DESIGN LOADS: L/480.000
 LIVE LOAD: 40.0 lb/ft²
 DEAD LOAD: 15.0 lb/ft²
 TILE LOAD: 20.0 lb/ft²

SUBFLOOR: 3/4" GLUED AND NAILED

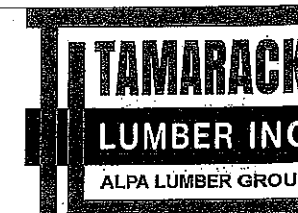


Products				
PlotID	Length	Product	Plies	Net Qty
J1	20'-00"-00	11 7/8" NI-40x	1	8
J1DJ	20'-00"-00	11 7/8" NI-40x	2	4
J2	18'-00"-00	11 7/8" NI-40x	1	2
J3	14'-00"-00	11 7/8" NI-40x	1	1
J4	6'-00"-00	11 7/8" NI-40x	1	4
J5	4'-00"-00	11 7/8" NI-40x	1	1
J6	2'-00"-00	11 7/8" NI-40x	1	2
J7	20'-00"-00	11 7/8" NI-80	1	60
B4	20'-00"-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B1	10'-00"-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B2	6'-00"-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B3	6'-00"-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1

Connector Summary		
Qty	Manuf	Product
3	H1	IUS2.56/11.88
11	H1	IUS2.56/11.88
2	H1	IUS2.56/11.88
2	H1	IUS2.56/11.88
1	H2	HUS1.81/10

DATE: 2021-04-29

1st FLOOR OPT GUEST
SUITE



FROM PLAN DATED: 2021/2

BUILDER: GREENPARK HOMES

SITE: RUSSELL GARDENS PH4

MODEL: SPRINGFIELD 3

ELEVATION: 3

LOT:

CITY: HAMILTON

SALESMAN: RICK DICIANO

DESIGNER: AJ

REVISION:

NOTES:

REFER TO THE **NORDIC INSTALLATION GUIDE** FOR PROPER STORAGE AND INSTALLATION.

SQUASH BLOCKS OF 2x4, 2x6, 2x8 #2 S.F REQ'D UNDER INTERIOR UNIFORM LOAD BEARING WALLS. **MULTIPLE SQUASH BLOCKS** REQ'D UNDER CONCENTRATED LOADS. SEE FIGURE 1. **CANTILEVERED JOISTS** INCLUDING **CANT' OVER BRICK** F I-JOIST BLOCKING ALONG BEARING AND RIMBOARD CLOSURE AT ENDS. SEE FIGURES 4 & 5 FOR REINFORCEMENT REQUIREMENTS. FOR **HOLES** INCLUDING **DUCT CHASE** AND **FIELD CUT OPENINGS** SEE FIGURE 7, TABLES 1 & 2. **CERAMIC** APPLICATION AS PER O.B.C 9.30.6.

LOADING:

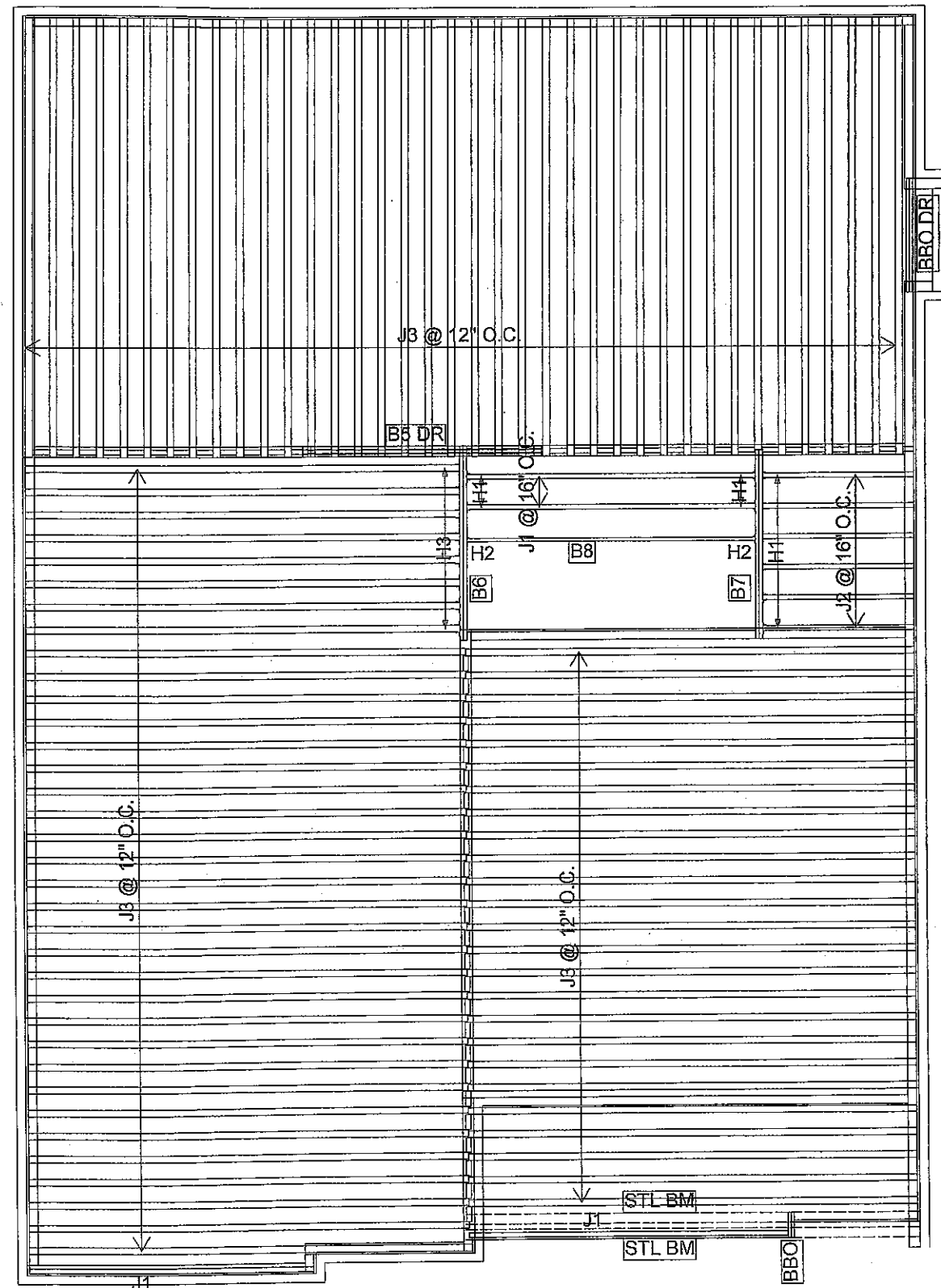
DESIGN LOADS: L/480.000

LIVE LOAD: 40.0 lb/ft²

DEAD LOAD: 15.0 lb/ft²

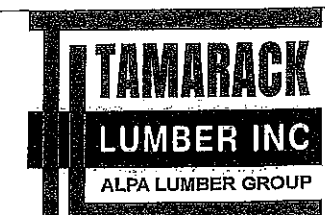
TILE LOAD: 20.0 lb/ft²

SUBFLOOR: 3/4" GLUED AND NAILED



Products				
PlotID	Length	Product	Plies	Net Qty
J1	14-00-00	11 7/8" NI-40x	1	4
J2	8-00-00	11 7/8" NI-40x	1	6
J3	20-00-00	11 7/8" NI-80	1	98
B5 DR	12-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	3	3
B8	14-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B6	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B7	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2

Connector Summary		
Qty	Manuf	Product
10	H1	IUS2.56/11.88
2	H2	HUS1.81/10
8	H3	IUS3.56/11.88



FROM PLAN DATED: 2021/2

BUILDER: GREENPARK HOMES

SITE: RUSSELL GARDENS PH4

MODEL: SPRINGFIELD 3

ELEVATION: 1

LOT:

CITY: HAMILTON

SALESMAN: RICK DICIANO

DESIGNER: AJ

REVISION:

NOTES:

REFER TO THE **NORDIC INSTALLATION GUIDE** FOR PROPER STORAGE AND INSTALLATION.

SQUASH BLOCKS OF 2x4, 2x6, 2x8 #2 S.F REQ'D UNDER INTERIOR UNIFORM LOAD BEARING WALLS. **MULTIPLE SQUASH BLOCKS** REQ'D UNDER CONCENTRATED LOADS. SEE FIGURE 1. **CANTILEVERED JOISTS** INCLUDING CANT' OVER BRICK R I-JOIST BLOCKING ALONG BEARING AND RIMBOARD CLOSURE AT ENDS. SEE FIGURES 4 & 5 FOR REINFORCEMENT REQUIREMENTS. FOR **HOLES** INCLUDING **DUCT CHASE** AND **FIELD CUT OPENINGS** SEE FIGURE 7, TABLES 1 & 2. **CERAMIC** APPLICATION AS PER O.B.C 9.30.6.

LOADING:

DESIGN LOADS: L/480.000

LIVE LOAD: 40.0 lb/ft²

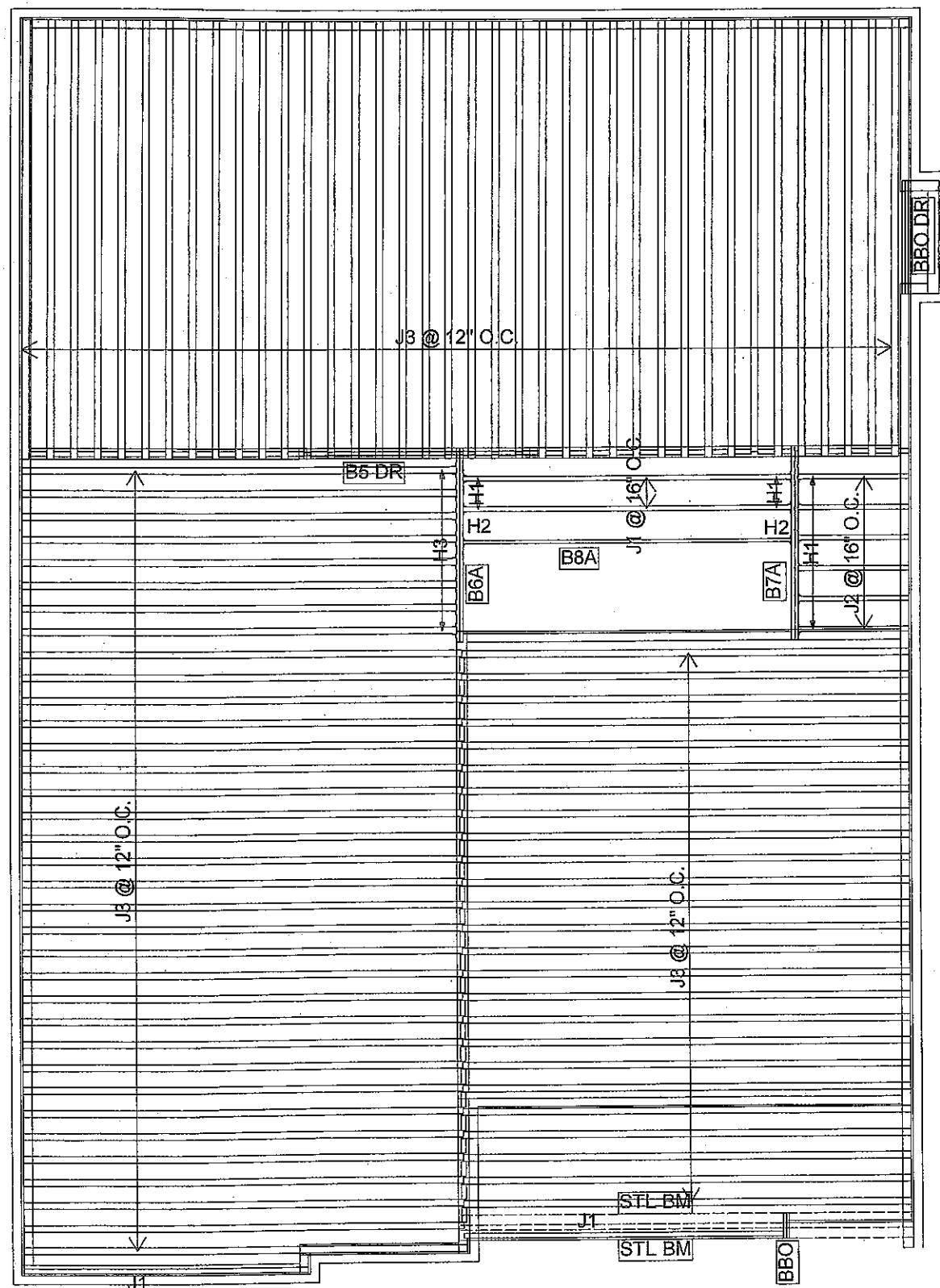
DEAD LOAD: 15.0 lb/ft²

TILE LOAD: 20.0 lb/ft²

DATE: 2021-04-29

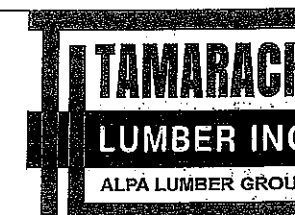
2ND FLOOR

SUBFLOOR: 5/8" GLUED AND NAILED



Products				
PlotID	Length	Product	Plies	Net Qty
J1	14-00-00	11 7/8" NI-40x	1	4
J2	6-00-00	11 7/8" NI-40x	1	6
J3	20-00-00	11 7/8" NI-80	1	98
B5 DR	12-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	3	3
B8A	14-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B6A	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B7A	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2

Connector Summary		
Qty	Manuf	Product
10	H1	IUS2.56/11.88
2	H2	HUS1.81/10
8	H3	IUS3.56/11.88



FROM PLAN DATED: 2021/2
 BUILDER: GREENPARK HOMES
 SITE: RUSSELL GARDENS PH4
 MODEL: SPRINGFIELD 3
 ELEVATION: 1
 LOT:
 CITY: HAMILTON
 SALESMAN: RICK DICIANO
 DESIGNER: AJ
 REVISION:

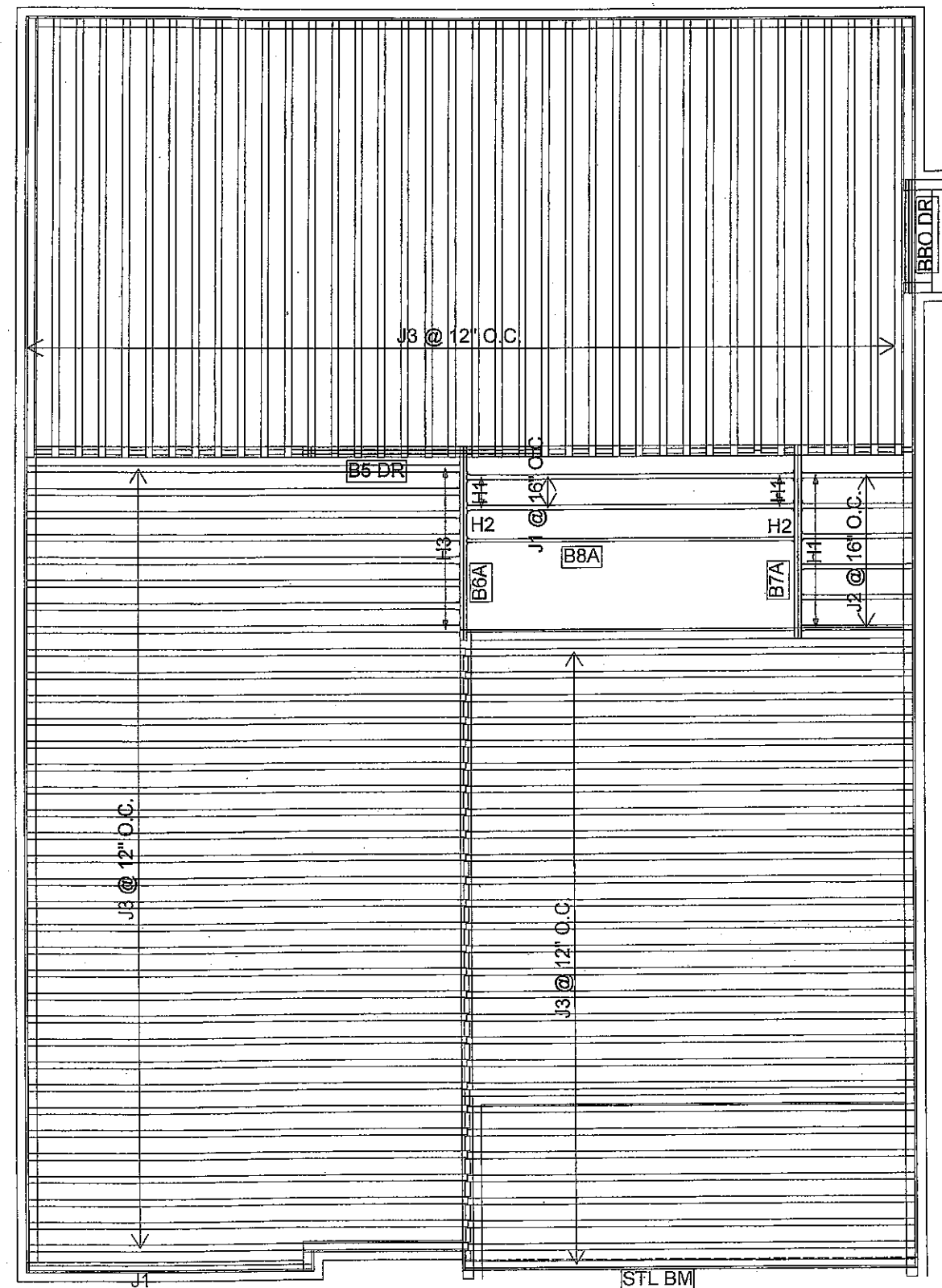
NOTES:
 REFER TO THE **NORDIC INSTALLATION**
 GUIDE FOR PROPER STORAGE AND
 INSTALLATION.
SQUASH BLOCKS OF 2x4, 2x6, 2x8 #2 S.P
 REQ'D UNDER INTERIOR UNIFORM LOAD
 BEARING WALLS. **MULTIPLE SQUASH**
BLOCKS REQ'D UNDER CONCENTRATED
 LOADS. SEE FIGURE 1. **CANTILEVERED**
JOISTS INCLUDING **CANT' OVER BRICK R**
I-JOIST BLOCKING ALONG BEARING AND
 RIMBOARD CLOSURE AT ENDS. SEE
 FIGURES 4 & 5 FOR REINFORCEMENT
 REQUIREMENTS. FOR **HOLES** INCLUDING
DUCT CHASE AND **FIELD CUT OPENINGS**
 SEE FIGURE 7, TABLES 1 & 2. **CERAMIC** 1
 APPLICATION AS PER O.B.C 9.30.6.

LOADING:
 DESIGN LOADS: L/480.000
 LIVE LOAD: 40.0 lb/ft²
 DEAD LOAD: 15.0 lb/ft²
 TILE LOAD: 20.0 lb/ft²

DATE: 2021-04-29

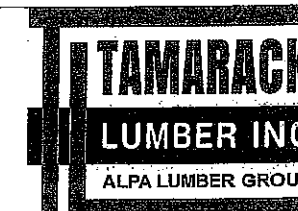
2ND FLOOR OPT 10'
 MAIN FLOOR

SUBFLOOR: 5/8" GLUED AND NAILED



Products				
PlotID	Length	Product	Plies	Net Qty
J1	14-00-00	11 7/8" NI-40x	1	3
J2	6-00-00	11 7/8" NI-40x	1	6
J3	20-00-00	11 7/8" NI-80	1	101
B5 DR	12-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	3	3
B8A	14-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B6A	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B7A	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2

Connector Summary		
Qty	Manuf	Product
10	H1	IUS2.56/11.88
2	H2	HUS1.81/10
8	H3	IUS3.56/11.88



FROM PLAN DATED: 2021/2
 BUILDER: GREENPARK HOMES
 SITE: RUSSELL GARDENS PH4
 MODEL: SPRINGFIELD 3
 ELEVATION: 2
 LOT:
 CITY: HAMILTON

SALESMAN: RICK DICIANO
 DESIGNER: AJ
 REVISION:

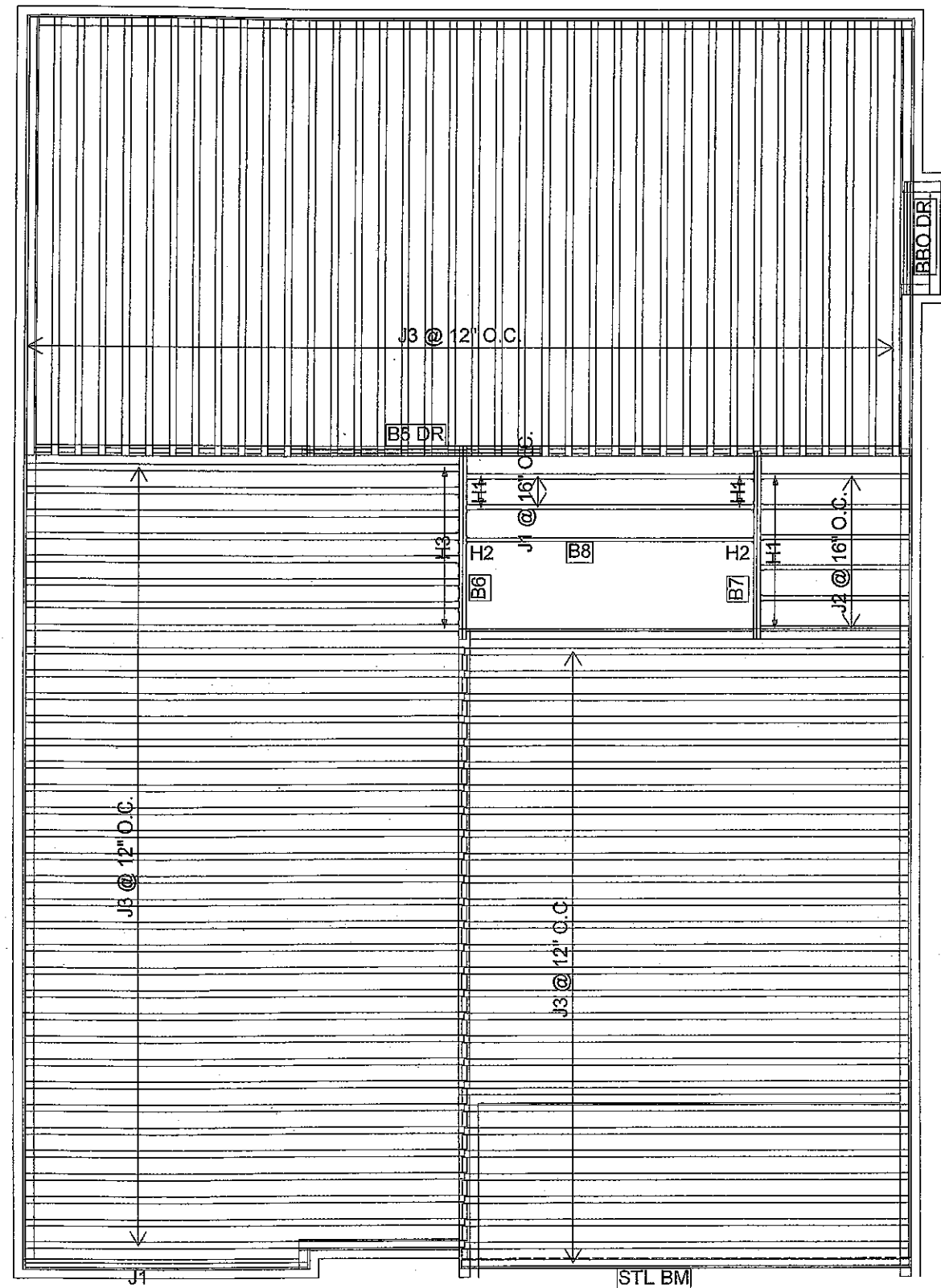
NOTES:
 REFER TO THE **NORDIC INSTALLATION** GUIDE FOR PROPER STORAGE AND INSTALLATION.
SQUASH BLOCKS OF 2x4, 2x6, 2x8 #2 S.F REQ'D UNDER INTERIOR UNIFORM LOAD BEARING WALLS. **MULTIPLE SQUASH BLOCKS** REQ'D UNDER CONCENTRATED LOADS. SEE FIGURE 1. **CANTILEVERED JOISTS** INCLUDING **CANT' OVER BRICK R** I-JOIST BLOCKING ALONG BEARING AND RIMBOARD CLOSURE AT ENDS. SEE FIGURES 4 & 5 FOR REINFORCEMENT REQUIREMENTS. FOR **HOLES** INCLUDING **DUCT CHASE** AND **FIELD CUT OPENINGS** SEE FIGURE 7, TABLES 1 & 2. **CERAMIC T** APPLICATION AS PER O.B.C 9.30.6.

LOADING:
 DESIGN LOADS: L/480.000
 LIVE LOAD: 40.0 lb/ft²
 DEAD LOAD: 15.0 lb/ft²
 TILE LOAD: 20.0 lb/ft²

DATE: 2021-04-29

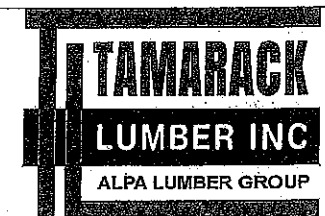
2ND FLOOR OPT 10'
 MAIN FLOOR

SUBFLOOR: 5/8" GLUED AND NAILED



Products				
PlotID	Length	Product	Plies	Net Qty
J1	14-00-00	11 7/8" NI-40x	1	3
J2	8-00-00	11 7/8" NI-40x	1	6
J3	20-00-00	11 7/8" NI-80	1	101
B5 DR	12-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	3	3
B8	14-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B6	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B7	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2

Connector Summary		
Qty	Manuf	Product
10	H1	IUS2.56/11.88
2	H2	HUS1.81/10
8	H3	IUS3.56/11.88



FROM PLAN DATED: 2021/2
 BUILDER: GREENPARK HOMES
 SITE: RUSSELL GARDENS PH4
 MODEL: SPRINGFIELD 3
 ELEVATION: 2
 LOT:
 CITY: HAMILTON
 SALESMAN: RICK DICIANO
 DESIGNER: AJ
 REVISION:

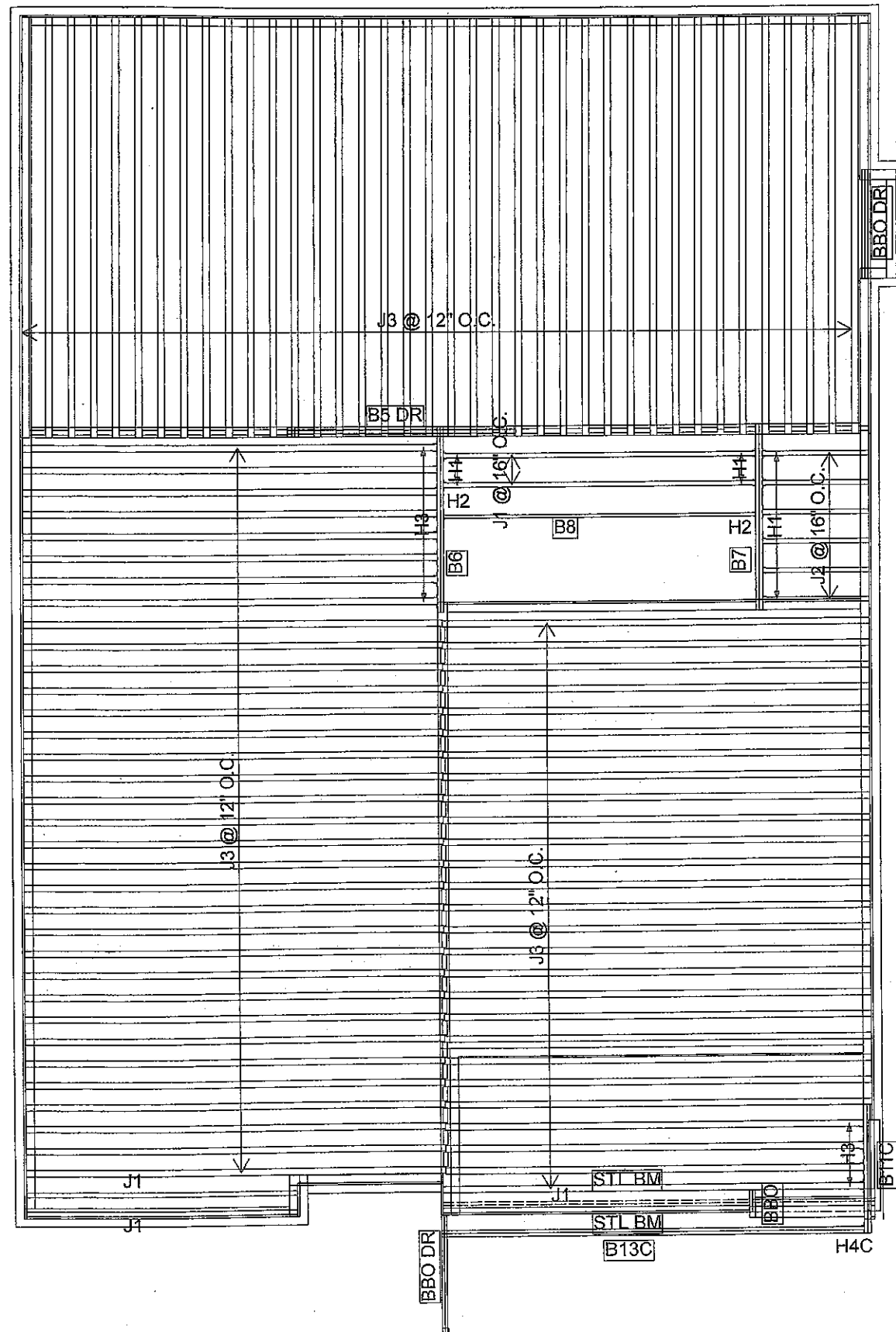
NOTES:
 REFER TO THE NORDIC INSTALLATION GUIDE FOR PROPER STORAGE AND INSTALLATION.
 SQUASH BLOCKS OF 2x4, 2x6, 2x8 #2 S.P. REQ'D UNDER INTERIOR UNIFORM LOAD BEARING WALLS. MULTIPLE SQUASH BLOCKS REQ'D UNDER CONCENTRATED LOADS. SEE FIGURE 1. CANTILEVERED JOISTS INCLUDING CANT' OVER BRICK RI I-JOIST BLOCKING ALONG BEARING AND RIMBOARD CLOSURE AT ENDS. SEE FIGURES 4 & 5 FOR REINFORCEMENT REQUIREMENTS. FOR HOLES INCLUDING DUCT CHASE AND FIELD CUT OPENINGS SEE FIGURE 7, TABLES 1 & 2. CERAMIC T APPLICATION AS PER O.B.C 9.30.6.

LOADING:
 DESIGN LOADS: L/480.000
 LIVE LOAD: 40.0 lb/ft²
 DEAD LOAD: 15.0 lb/ft²
 TILE LOAD: 20.0 lb/ft²

DATE: 2021-04-29

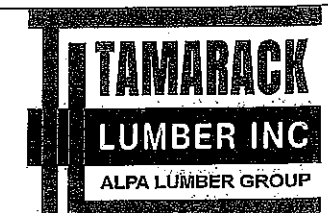
2ND FLOOR

SUBFLOOR: 5/8" GLUED AND NAILED



Products				
PlotID	Length	Product	Plies	Net Qty
J1	14-00-00	11 7/8" NI-40x	1	5
J2	6-00-00	11 7/8" NI-40x	1	6
J3	20-00-00	11 7/8" NI-80	1	99
B5 DR	12-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	3	3
B13C	20-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B8	14-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B6	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B7	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B11C	6-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2

Connector Summary		
Qty	Manuf	Product
10	H1	IUS2.56/11.88
2	H2	HUS1.81/10
12	H3	IUS3.56/11.88
1	H4C	HUC410



FROM PLAN DATED: 2021/2
 BUILDER: GREENPARK HOMES
 SITE: RUSSELL GARDENS PH4
 MODEL: SPRINGFIELD 3
 ELEVATION: 3
 LOT:
 CITY: HAMILTON
 SALESMAN: RICK DICIANO
 DESIGNER: AJ
 REVISION:

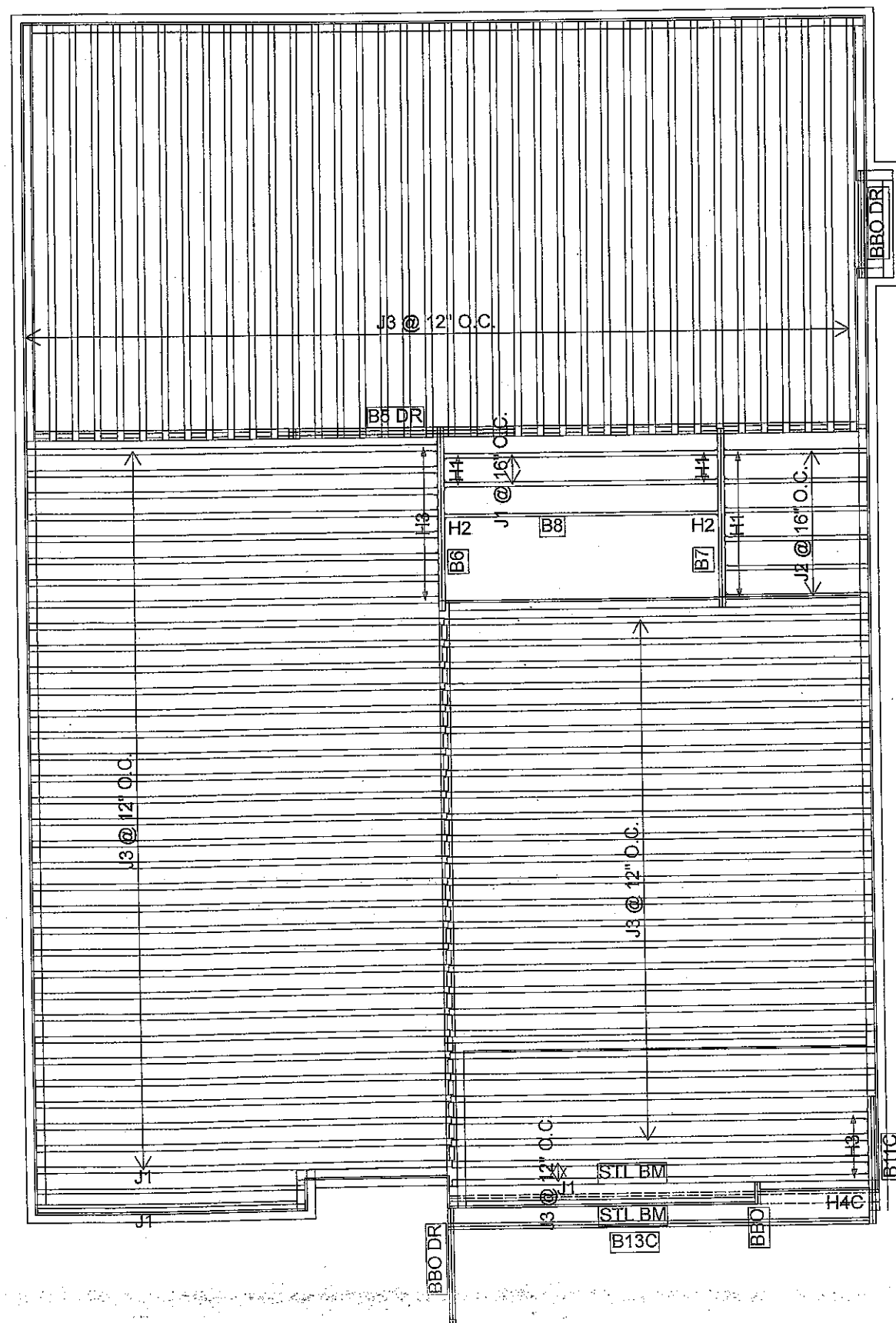
NOTES:
 REFER TO THE NORDIC INSTALLATION GUIDE FOR PROPER STORAGE AND INSTALLATION.
 SQUASH BLOCKS OF 2x4, 2x6, 2x8 #2 S.P REQ'D UNDER INTERIOR UNIFORM LOAD BEARING WALLS. MULTIPLE SQUASH BLOCKS REQ'D UNDER CONCENTRATED LOADS. SEE FIGURE 1. CANTILEVERED JOISTS INCLUDING CANT' OVER BRICK R I-JOIST BLOCKING ALONG BEARING AND RIMBOARD CLOSURE AT ENDS. SEE FIGURES 4 & 5 FOR REINFORCEMENT REQUIREMENTS. FOR HOLES INCLUDING DUCT CHASE AND FIELD CUT OPENINGS SEE FIGURE 7, TABLES 1 & 2. CERAMIC TILE APPLICATION AS PER O.B.C 9.30.6.

LOADING:
 DESIGN LOADS: L/480.000
 LIVE LOAD: 40.0 lb/ft²
 DEAD LOAD: 15.0 lb/ft²
 TILE LOAD: 20.0 lb/ft²

DATE: 2021-04-29

2ND FLOOR OPT 10'
 MAIN FLOOR

SUBFLOOR: 5/8" GLUED AND NAILED

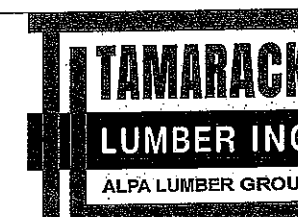


Products				
PlotID	Length	Product	Plies	Net Qty
J1	14-00-00	11 7/8" NI-40x	1	5
J2	8-00-00	11 7/8" NI-40x	1	6
J3	20-00-00	11 7/8" NI-80	1	99
B5 DR	12-00-00	1-3/4" x 9-1/2" VERSA-LAM@ 2.0 3100 SP	3	3
B13C	20-00-00	1-3/4" x 11-7/8" VERSA-LAM@ 2.0 3100 SP	2	2
B8	14-00-00	1-3/4" x 11-7/8" VERSA-LAM@ 2.0 3100 SP	1	1
B6	10-00-00	1-3/4" x 11-7/8" VERSA-LAM@ 2.0 3100 SP	2	2
B7	10-00-00	1-3/4" x 11-7/8" VERSA-LAM@ 2.0 3100 SP	2	2
B11C	6-00-00	1-3/4" x 11-7/8" VERSA-LAM@ 2.0 3100 SP	2	2

Connector Summary		
Qty	Manuf	Product
10	H1	IUS2.56/11.88
2	H2	HUS1.81/10
12	H3	IUS3.56/11.88
1	H4C	HUC410

DATE: 2021-04-29

2ND FLOOR



FROM PLAN DATED: 2021/2

BUILDER: GREENPARK HOMES

SITE: RUSSELL GARDENS PH4

MODEL: SPRINGFIELD 3

ELEVATION: 3

LOT:

CITY: HAMILTON

SALESMAN: RICK DICIANO

DESIGNER: AJ

REVISION:

NOTES:

REFER TO THE NORDIC INSTALLATION GUIDE FOR PROPER STORAGE AND INSTALLATION.

SQUASH BLOCKS OF 2x4, 2x6, 2x8 #2 S.F. REQ'D UNDER INTERIOR UNIFORM LOAD BEARING WALLS. **MULTIPLE SQUASH BLOCKS** REQ'D UNDER CONCENTRATED LOADS. SEE FIGURE 1. **CANTILEVERED JOISTS** INCLUDING **CANT' OVER BRICK** F I-JOIST BLOCKING ALONG BEARING AND RIMBOARD CLOSURE AT ENDS. SEE FIGURES 4 & 5 FOR REINFORCEMENT REQUIREMENTS. FOR **HOLES** INCLUDING **DUCT CHASE** AND **FIELD CUT OPENINGS** SEE FIGURE 7, TABLES 1 & 2. **CERAMIC** APPLICATION AS PER O.B.C 9.30.6.

LOADING:

DESIGN LOADS: L/480.000

LIVE LOAD: 40.0 lb/ft²

DEAD LOAD: 15.0 lb/ft²

TILE LOAD: 20.0 lb/ft²

SUBFLOOR: 5/8" GLUED AND NAILED



Boise Cascade
ENGINEERED WOOD PRODUCTS



Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP 2ND FLR FRAMING\Flush Beams\B6(i642) (Flush Beam)

PASSED

BC CALC® Member Report

Build 7773

Job name:

Address:

City, Province, Postal Code:

Customer:

Code reports:

CCMC 12472-R

Dry | 1 span | No cant.

March 18, 2021 07:46:14

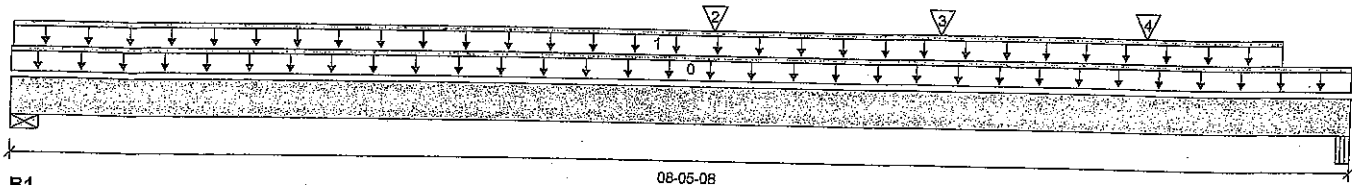
File name: SPRINGFIELD 3 EL 1.mmdl

Description: 2ND FLR FRAMING\Flush Beams\B6(i642)

Specifier:

Designer:

Company:



Total Horizontal Product Length = 08-05-08

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/2"	1843 / 0	989 / 0		
B2, 5-1/4"	2113 / 0	1126 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	08-05-08	Top	1.00	0.65	1.00	1.15	
1	Smoothed Load	Unf. Lin. (lb/ft)	L	00-00-02	08-00-02	Top					00-00-00
2	B8(i644)	Conc. Pt. (lbs)	L	04-04-06	04-04-06	Top	373	186			n/a
3	J1(i776)	Conc. Pt. (lbs)	L	05-09-10	05-09-10	Top	185	129			n/a
4	J1(i774)	Conc. Pt. (lbs)	L	07-01-10	07-01-10	Top	352	176			n/a
							420	210			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	8169 ft-lbs	35392 ft-lbs	23.1%	1	04-06-02
End Shear	4076 lbs	14464 lbs	28.2%	1	07-00-06
Total Load Deflection	L/999 (0.062")	n/a	n/a	4	04-03-08
Live Load Deflection	L/999 (0.04")	n/a	n/a	5	04-03-08
Max Defl.	0.062"	n/a	n/a	4	04-03-08
Span / Depth	7.8				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 5-1/2" x 3-1/2"	4001 lbs	33.8%	17.0%	Spruce-Pine-Fir
B2	Beam 5-1/4" x 3-1/2"	4576 lbs	20.4%	20.4%	VL 2.0 3100 SP

Notes

Design meets Code minimum (L/240) Total load deflection criteria.

Design meets Code minimum (L/360) Live load deflection criteria.

Resistance Factor phi has been applied to all presented results per CSA O86.

BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

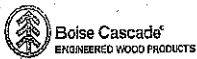
Calculations assume unbraced length of Top: 00-00-00, Bottom: 00-08-08.

CONFORMS TO OBC 2012

AMENDED 2020



ENG NO. TAM 9569-21
STRUCTURAL
COMPONENT ONLY



Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SF
2ND FLR FRAMING\Flush Beams\B6(i642) (Flush Beam)

PASSED

BC CALC® Member Report

Build 7773

Job name:

Address:

City, Province, Postal Code:

Customer:

Code reports: CCMC 12472-R

Dry | 1 span | No cant.

March 18, 2021 07:46:14

File name: SPRINGFIELD 3 EL 1.mmdl

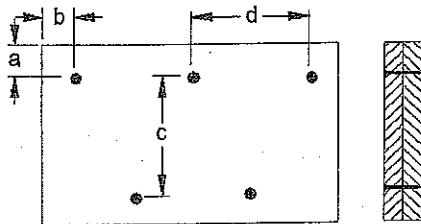
Description: 2ND FLR FRAMING\Flush Beams\B6(i642)

Specifier:

Designer:

Company:

Connection Diagram: Full Length of Member



a minimum = 2"

c = 7-7/8"

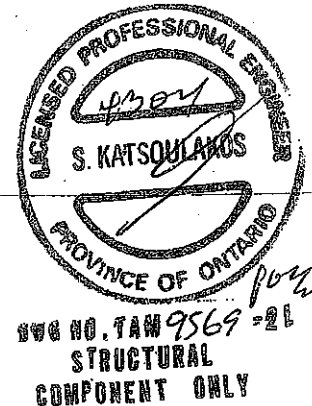
b minimum = 3"

d = 6"

Calculated Side Load = 799.0 lb/ft

Connectors are: 16d Nails

3 1/2" ARDOX SPIRAL



Disclosure

Use of the Boise Cascade Software is subject to the terms of the End User License Agreement (EULA). Completeness and accuracy of input must be reviewed and verified by a qualified engineer or other appropriate expert to assure its adequacy, prior to anyone relying on such output as evidence of suitability for a particular application. The output here is based on building code-accepted design properties and analysis methods. Installation of Boise Cascade engineered wood products must be in accordance with current Installation Guide and applicable building codes. To obtain Installation Guide or ask questions, please call (800)232-0788 before installation.

BC CALC®, BC FRAMER®, AJS™, ALLJOIST®, BC RIM BOARD™, BCI®, BOISE GLULAM™, BC FloorValue®, VERSA-LAM®, VERSA-RIM PLUS®



Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP

2ND FLR FRAMING\Flush Beams\B7(i643) (Flush Beam)

PASSED

BC CALC® Member Report

Dry | 1 span | No cant.

March 18, 2021 07:46:14

Build 7773

Job name:

File name: SPRINGFIELD 3 EL 1.mmdl

Address:

Description: 2ND FLR FRAMING\Flush Beams\B7(i643)

City, Province, Postal Code:

Specifier:

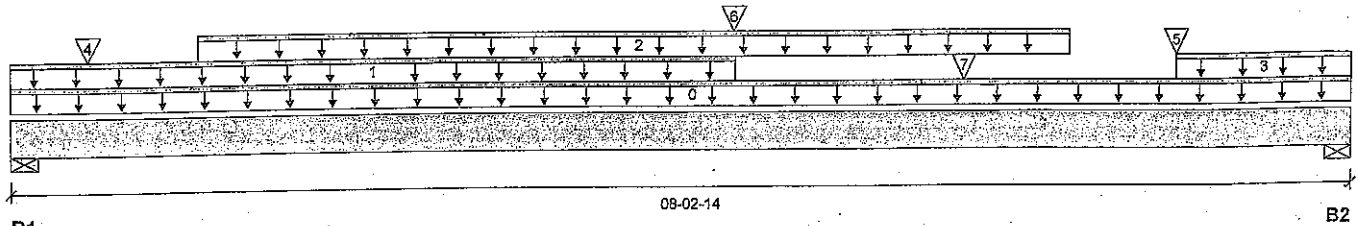
Customer:

Designer:

Code reports:

CCMC 12472-R

Company:



Total Horizontal Product Length = 08-02-14

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/2"	1618 / 0	877 / 0		
B2, 2-3/4"	1434 / 0	783 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	08-02-14	Top	1.00	0.65	1.00	1.15	00-00-00
1	STAIR	Unf. Lin. (lb/ft)	L	00-00-00	04-04-08	Top	240	120			n/a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	01-01-10	06-05-10	Top	130	65			n/a
3	FC3 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	07-01-10	08-02-14	Top	39	19			n/a
4	J2(i777)	Conc. Pt. (lbs)	L	00-05-10	00-05-10	Top	153	77			n/a
5	-	Conc. Pt. (lbs)	L	07-01-10	07-01-10	Top	556	278			n/a
6	B8(i644)	Conc. Pt. (lbs)	L	04-04-06	04-04-06	Top	185	129			n/a
7	J1(i776)	Conc. Pt. (lbs)	L	05-09-10	05-09-10	Top	352	176			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	6273 ft-lbs	35392 ft-lbs	17.7%	1	04-04-06
End Shear	2956 lbs	14464 lbs	20.4%	1	07-00-04
Total Load Deflection	L/999 (0.048")	n/a	n/a	4	04-03-08
Live Load Deflection	L/999 (0.031")	n/a	n/a	5	04-03-08
Max Defl.	0.048"	n/a	n/a	4	04-03-08
Span / Depth	7.8				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 5-1/2" x 3-1/2"	3523 lbs	29.7%	15.0%	Spruce-Pine-Fir
B2	Wall/Plate 2-3/4" x 3-1/2"	3130 lbs	52.9%	26.7%	Spruce-Pine-Fir

Notes

Design meets Code minimum (L/240) Total load deflection criteria.

Design meets Code minimum (L/360) Live load deflection criteria.

Resistance Factor phi has been applied to all presented results per CSA O86.

BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

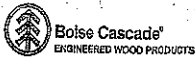
Calculations assume unbraced length of Top: 00-00-00, Bottom: 01-01-08.

CONFORMS TO OBC 2012

AMENDED 2020



OWG NO. FAW 9570-21
STRUCTURAL
COMPONENT ONLY



Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP
2ND FLR FRAMING\Flush Beams\B7(i643) (Flush Beam)
 Dry | 1 span | No cant

PASSED

March 18, 2021 07:46:14

BC CALC® Member Report

Build 7773

Job name:

Address:

City, Province, Postal Code:

Customer:

Code reports:

CCMC 12472-R

File name: SPRINGFIELD 3 EL 1.mmdl

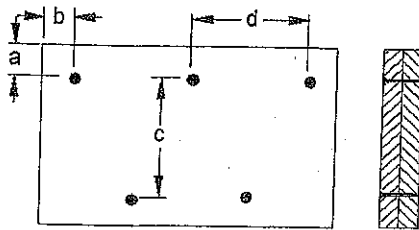
Description: 2ND FLR FRAMING\Flush Beams\B7(i643)

Specifier:

Designer:

Company:

Connection Diagram: Full Length of Member



a minimum = 2"

c = 7-7/8"

b minimum = 3"

d = 8"

Calculated Side Load = 593.4 lb/ft

Connectors are: 16d Nails

3/4" ARDOX SPIRAL



ENG. NO. 9570-21
STRUCTURAL
COMPONENT ONLY

Disclosure

Use of the Boise Cascade Software is subject to the terms of the End User License Agreement (EULA). Completeness and accuracy of input must be reviewed and verified by a qualified engineer or other appropriate expert to assure its adequacy, prior to anyone relying on such output as evidence of suitability for a particular application. The output here is based on building code-accepted design properties and analysis methods. Installation of Boise Cascade engineered wood products must be in accordance with current Installation Guide and applicable building codes. To obtain Installation Guide or ask questions, please call (800)232-0788 before installation.

BC CALC®, BC FRAMER®, AJST®, ALLJOIST®, BC RIM BOARD™, BCI®, BOISE GLULAM™, BC FloorValue®, VERSA-LAM®, VERSA-RIM PLUS®



Single 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP
2ND FLR FRAMING\Flush Beams\B8(i644) (Flush Beam)

PASSED

BC CALC® Member Report

Dry | 1 span | No cant.

March 18, 2021 07:46:14

Build 7773

Job name:

File name: SPRINGFIELD 3 EL 1.mmdl

Address:

Description: 2ND FLR FRAMING\Flush Beams\B8(i644)

City, Province, Postal Code:

Specifier:

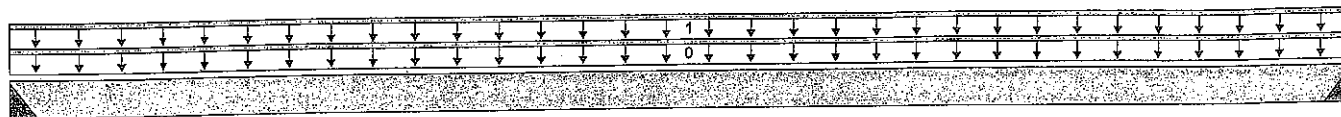
Customer:

Designer:

Code reports:

CCMC 12472-R

Company:



B1 12-03-00 B2
Total Horizontal Product Length = 12-03-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2"	185 / 0	129 / 0		
B2, 2"	185 / 0	129 / 0		

Load Summary

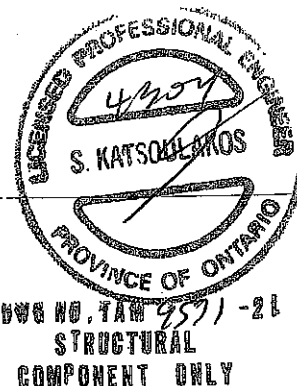
Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	12-03-00	Top	1.00	0.65	1.00	1.15	00-00-00
1	FC3 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	00-00-00	12-03-00	Top	30	15			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	1300 ft-lbs	17696 ft-lbs	7.3%	1	06-01-08
End Shear	356 lbs	7232 lbs	4.9%	1	01-01-14
Total Load Deflection	L/999 (0.05")	n/a	n/a	4	06-01-08
Live Load Deflection	L/999 (0.029")	n/a	n/a	5	06-01-08
Max Defl.	0.05"	n/a	n/a	4	06-01-08
Span / Depth	12.2				

Bearing Supports

	Dlm. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Hanger 2" x 1-3/4"	439 lbs	n/a	10.3%	HUS1.81/10
B2	Hanger 2" x 1-3/4"	439 lbs	n/a	10.3%	HUS1.81/10



Cautions

Header for the hanger HUS1.81/10 is a Double 1-3/4" x 11-7/8" LVL Beam.
Hanger model HUS1.81/10 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.

Notes

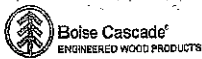
Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Hanger Manufacturer: Unassigned
Resistance Factor phi has been applied to all presented results per CSA O86. AMENDED 2020
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.
Design based on Dry Service Condition.
Importance Factor : Normal Part code : Part 9
Calculations assume unbraced length of Top: 00-00-00, Bottom: 12-03-00.

CONFORMS TO OBC 2012

Disclosure

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BC CALC®, BC FRAMER®, AJS™, ALLJOIST®, BC RIM BOARD™, BCI®, BOISE GLULAM™, BC FloorValue®, VERSA-LAM®, VERSA-RIM PLUS®.



Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP

PASSED

1ST FLR FRAMING\Flush Beams\B1(i469) (Flush Beam)

Dry | 1 span | No cant.

March 18, 2021 07:46:14

BC CALC® Member Report

Build 7773

Job name:

File name: SPRINGFIELD 3 EL 1.mmdl

Address:

Description: 1ST FLR FRAMING\Flush Beams\B1(i469)

City, Province, Postal Code:

Specifier:

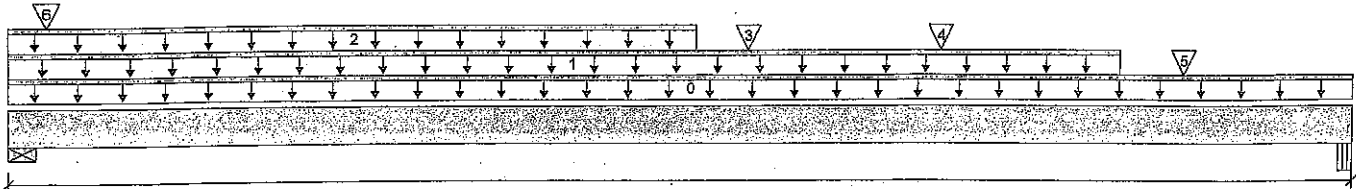
Customer:

Designer:

Code reports:

CCMC-12472-R

Company:



B1

Total Horizontal Product Length = 08-05-10

B2

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/2"	4357 / 0	2345 / 0		
B2, 5-1/4"	1859 / 0	987 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	08-05-10	Top		12			00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	00-00-00	06-11-10	Top	378	189			n/a
2	STAIR	Unf. Lin. (lb/ft)	L	00-00-00	04-03-02	Top	240	120			n/a
3	J3(i570)	Conc. Pt. (lbs)	L	04-07-00	04-07-00	Top	83	41			n/a
4	J3(i571)	Conc. Pt. (lbs)	L	05-09-10	05-09-10	Top	133	66			n/a
5	-	Conc. Pt. (lbs)	L	07-04-08	07-04-08	Top	440	219			n/a
6	1(i638)	Conc. Pt. (lbs)	L	00-02-12	00-02-12	Top	1845	1029			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	8752 ft-lbs	35392 ft-lbs	24.7%	1	04-02-04
End Shear	3846 lbs	14464 lbs	26.6%	1	01-05-06
Total Load Deflection	L/999 (0.067")	n/a	n/a	4	04-02-04
Live Load Deflection	L/999 (0.044")	n/a	n/a	5	04-02-04
Max Defl.	0.067"	n/a	n/a	4	04-02-04
Span / Depth	7.8				

Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 5-1/2" x 3-1/2"	9466 lbs	79.9%	40.3%	Spruce-Pine-Fir
B2	Beam 5-1/4" x 3-1/2"	4023 lbs	51.2%	17.9%	Unspecified

Notes

Design meets Code minimum (L/240) Total load deflection criteria.

Design meets Code minimum (L/360) Live load deflection criteria.

Resistance Factor phi has been applied to all presented results per CSA O86.

BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

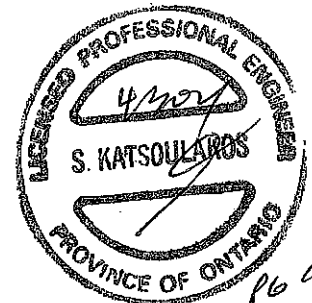
Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

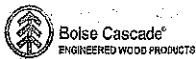
Calculations assume unbraced length of Top: 00-00-00, Bottom: 00-09-08.

CONFORMS TO OBC 2012

AMENDED 2020



000 NO. TAM 9572-21
STRUCTURAL
COMPONENT ONLY



Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP

PASSED

1ST FLR FRAMING\Flush Beams\B1(i469) (Flush Beam)

Dry | 1 span | No cant.

March 18, 2021 07:46:14

BC CALC® Member Report

Build 7773

Job name:

Address:

City, Province, Postal Code:

Customer:

Code reports: CCMC 12472-R

File name: SPRINGFIELD 3 EL 1.mmdl

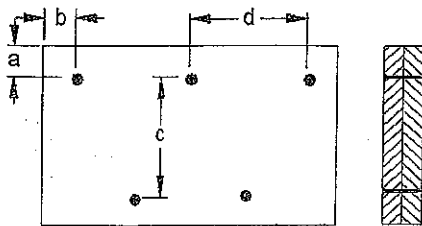
Description: 1ST FLR FRAMING\Flush Beams\B1(i469)

Specifier:

Designer:

Company:

Connection Diagram: Full Length of Member



a minimum = 2"

c = 7-7/8"

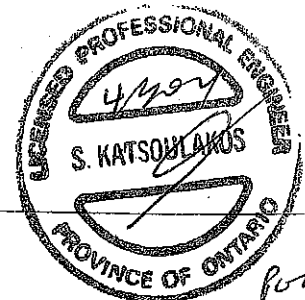
b minimum = 3"

d = 8"

Calculated Side Load = 802.5 lb/ft

Connectors are: 16d Nails

3/4" ARDOX SPIRAL



ENG NO. TAM 9592-21
STRUCTURAL
COMPONENT ONLY

Disclosure

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BC CALC®, BC FRAMER®, AJS™, ALLJOIST®, BC RIM BOARD™, BCI®, BOISE GLULAM™, BC FloorValue®, VERSA-LAM®, VERSA-RIM PLUS®



Single 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP
1ST FLR FRAMING\Flush Beams\B2(i578) (Flush Beam)
Dry | 1 span | No cant.

PASSED

March 18, 2021 07:46:14

BC CALC® Member Report
Build 7773

Job name:

Address:

City, Province, Postal Code:

Customer:

Code reports:

CCMC 12472-R

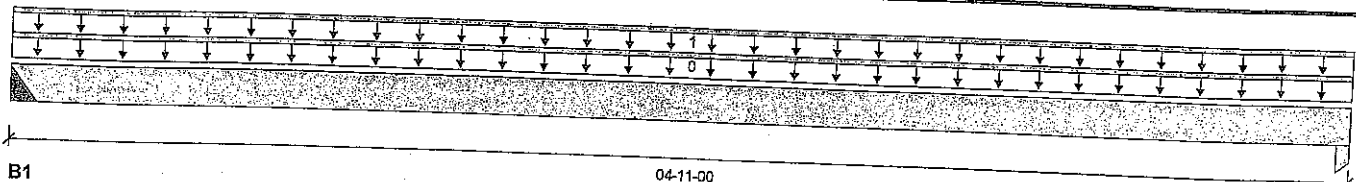
File name: SPRINGFIELD 3 EL 1.mmdl

Description: 1ST FLR FRAMING\Flush Beams\B2(i578)

Specifier:

Designer:

Company:



Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2"	20 / 0	25 / 0		
B2, 1-3/4"	19 / 0	24 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	04-11-00	Top	1.00	0.65	1.00	1.15	
1	FC2 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	00-00-00	04-11-00	Top	8	4			00-00-00 n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	68 ft-lbs	17696 ft-lbs	0.4%	1	02-05-10
End Shear	32 lbs	7232 lbs	0.4%	1	01-01-14
Total Load Deflection	L/999 (0")	n/a	n/a	4	02-05-10
Live Load Deflection	L/999 (0")	n/a	n/a	5	02-05-10
Max Defl.	0"	n/a	n/a	4	02-05-10
Span / Depth	4.8				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Hanger 2" x 1-3/4"	60 lbs	n/a	1.4%	HUS1.81/10
B2	Column 1-3/4" x 1-3/4"	60 lbs	3.0%	1.6%	Unspecified

Cautions

Header for the hanger HUS1.81/10 is a Double 1-3/4" x 11-7/8" LVL Beam.

Hanger model HUS1.81/10 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.

Notes

Design meets Code minimum (L/240) Total load deflection criteria.

Design meets Code minimum (L/360) Live load deflection criteria.

Hanger Manufacturer: Unassigned

Resistance Factor phi has been applied to all presented results per CSA O86. AMENDED 2020

BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

Calculations assume unbraced length of Top: 00-00-00, Bottom: 04-11-00.

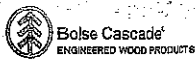
CONFORMS TO CBC 2012



Disclosure

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Single 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP

1ST FLR FRAMING\Flush Beams\B3(i478) (Flush Beam)

Dry | 1 span | No cant.

PASSED

March 18, 2021 07:46:14

BC CALCO® Member Report

Build 7773

Job name:

Address:

City, Province, Postal Code:

Customer:

Code reports:

CCMC 12472-R

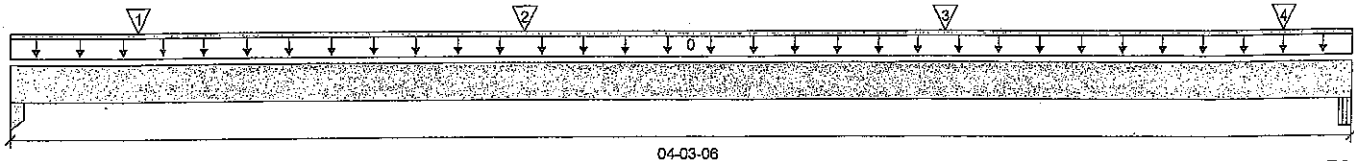
File name: SPRINGFIELD 3 EL 1.mmdl

Description: 1ST FLR FRAMING\Flush Beams\B3(i478)

Specifier:

Designer:

Company:



B1 04-03-06 B2

Total Horizontal Product Length = 04-03-06

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	196 / 0	110 / 0		
B2, 5-1/4"	203 / 0	126 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	04-03-06	Top	1.00	0.65	1.00	1.15	00-00-00
1	J3(i570)	Conc. Pt. (lbs)	L	00-04-12	00-04-12	Top	84	42			n/a
2	J3(i571)	Conc. Pt. (lbs)	L	01-07-06	01-07-06	Top	133	66			n/a
3	J3(i444)	Conc. Pt. (lbs)	L	02-11-06	02-11-06	Top	125	62			n/a
4	4(i640)	Conc. Pt. (lbs)	L	04-00-10	04-00-10	Top	54	39			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	371 ft-lbs	17696 ft-lbs	2.1%	1	01-07-06
End Shear	296 lbs	7232 lbs	4.1%	1	02-10-04
Total Load Deflection	L/999 (0.001")	n/a	n/a	4	02-00-15
Live-Load Deflection	L/999 (0.001")	n/a	n/a	5	02-00-15
Max Defl.	0.001"	n/a	n/a	4	02-00-15
Span / Depth	3.7				

Bearing Supports

				Demand/ Resistance Support	Demand/ Resistance Member	Material
Bearing Supports		Dim. (LxW)	Demand			
B1	Column	3-1/2" x 1-3/4"	432 lbs	10.8%	5.8%	Unspecified
B2	Beam	5-1/4" x 1-3/4"	461 lbs	11.8%	4.1%	Unspecified

Notes

Design meets Code minimum (L/240) Total load deflection criteria.

Design meets Code minimum (L/360) Live load deflection criteria.

Resistance Factor phi has been applied to all presented results per CSA O86. AMENDED 2020

BC CALCO® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

Calculations assume unbraced length of Top: 00-00-00, Bottom: 01-01-08.

CONFORMS TO OBC 2012

AMENDED 2020



OWG NO. TAM 9574 -21
STRUCTURAL
COMPONENT ONLY

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Single 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP

PASSED

1ST FLR FRAMING\Flush Beams\B4(i529) (Flush Beam)

BC CALC® Member Report

Dry | 1 span | No cant.

March 18, 2021 07:46:14

Build 7773

Job name:

File name: SPRINGFIELD 3 EL 1.mmdl

Address:

Description: 1ST FLR FRAMING\Flush Beams\B4(i529)

City, Province, Postal Code:

Specifier:

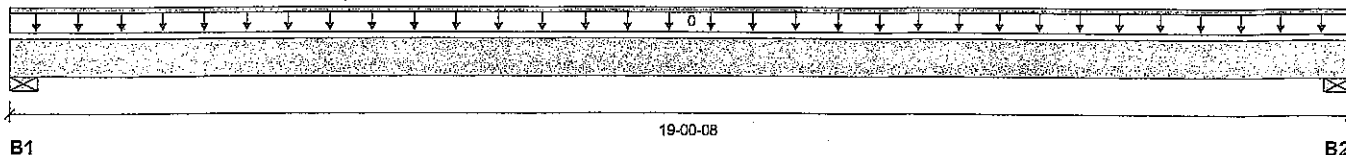
Customer:

Designer:

Code reports:

CCMC 12472-R

Company:



Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"		56 / 0		
B2, 8"		58 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	19-00-08	Top	1.00	0.65	1.00	1.15	
							6				00-00-00

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	349 ft-lbs	2752 ft-lbs	12.7%	0	09-04-00
End Shear	68 lbs	4701 lbs	1.4%	0	01-03-06
Total Load Deflection	L/999 (0.03")	n/a	n/a	1	09-04-00
Max Defl.	0.03"	n/a	n/a	1	09-04-00
Span / Depth	18.4				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 3-1/2" x 1-3/4"	79 lbs	1.7%	1.6%	Unspecified
B2	Wall/Plate 8" x 1-3/4"	82 lbs	0.8%	0.7%	Unspecified

Notes

Design meets Code minimum (L/240) Total load deflection criteria.

Resistance Factor phi has been applied to all presented results per CSA O86.

BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

Calculations assume unbraced length of Top: 18-01-00, Bottom: 18-01-00.

CONFORMS TO CBC 2012

AMENDED 2020

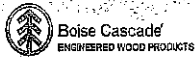


OWC NO. TAM 9575 -21
STRUCTURAL
COMPONENT ONLY

Disclosure

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BC CALC®, BC FRAMER®, AJS™, ALLJOIST®, BC RIM BOARD™, BCI®, BOISE GLULAM™, BC FloorValue®, VERSA-LAM®, VERSA-RIM PLUS®,



Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP

2ND FLR FRAMING\Flush Beams\B6A(i2095) (Flush Beam)

PASSED

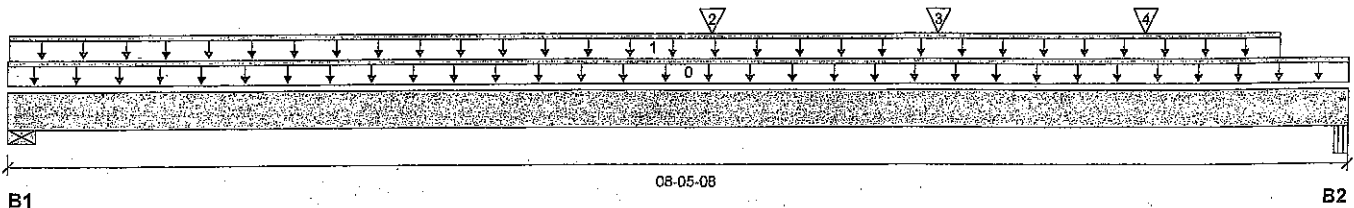
BC CALC® Member Report
Build 7773

Dry | 1 span | No cant.

March 18, 2021 07:58:45

Job name:
Address:
City, Province, Postal Code: HAMILTON
Customer:
Code reports: CCMC 12472-R

File name: SPRINGFIELD 3 EL 1 10' CEILING.mmdl
Description: 2ND FLR FRAMING\Flush Beams\B6A(i2095)
Specifier:
Designer: AJ
Company:



Total Horizontal Product Length = 08-05-08

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/2"	1860 / 0	1000 / 0		
B2, 5-1/4"	2106 / 0	1125 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	08-05-08	Top	12				00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	00-00-02	08-00-02	Top	373	186			n/a
2	B8A(i2033)	Conc. Pt. (lbs)	L	04-04-06	04-04-06	Top	210	147			n/a
3	J1(i2013)	Conc. Pt. (lbs)	L	05-09-10	05-09-10	Top	400	200			n/a
4	J1(i2161)	Conc. Pt. (lbs)	L	07-01-10	07-01-10	Top	335	167			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	8323 ft-lbs	35392 ft-lbs	23.5%	1	04-06-02
End Shear	4075 lbs	14464 lbs	28.2%	1	07-00-06
Total Load Deflection	L/999 (0.063")	n/a	n/a	4	04-03-08
Live Load Deflection	L/999 (0.041")	n/a	n/a	5	04-03-08
Max Defl.	0.063"	n/a	n/a	4	04-03-08
Span / Depth	7.8				

Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 5-1/2" x 3-1/2"	4041 lbs	34.1%	17.2%	Spruce-Pine-Fir
B2	Beam 5-1/4" x 3-1/2"	4565 lbs	20.4%	20.4%	VL 2.0 3100 SP

Notes

Design meets Code minimum (L/240) Total load deflection criteria.

Design meets Code minimum (L/360) Live load deflection criteria.

Resistance Factor phi has been applied to all presented results per CSA O86.

BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

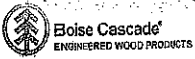
Calculations assume unbraced length of Top: 00-00-00, Bottom: 00-08-08.

CONFORMS TO OBC 2012

AMENDED 2020



OWB NO. YAM 9576 -21
STRUCTURAL
COMPONENT ONLY



Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP
2ND FLR FRAMING\Flush Beams\B6A(I2095) (Flush Beam)
 Dry | 1 span | No cant.

PASSED

March 18, 2021 07:58:45

BC CALC® Member Report

Build 7773

Job name:

Address:

City, Province, Postal Code: HAMILTON

Customer:

Code reports: CCMC 12472-R

File name: SPRINGFIELD 3 EL 1 10' CEILING.mmdl

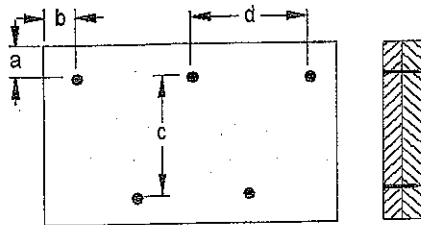
Description: 2ND FLR FRAMING\Flush Beams\B6A(I2095)

Specifier:

Designer: AJ

Company:

Connection Diagram: Full Length of Member



a minimum = 2"
 b minimum = 3"

c = 7-7/8"
 d = 8"

Calculated Side Load = 799.0 lb/ft
 Connectors are: 16d Nails

3 1/2" ARDOX SPIRAL



ONE NO. TAN 9576-21
STRUCTURAL
COMPONENT ONLY

Disclosure

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Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP

PASSED

2ND FLR FRAMING\Flush Beams\B7A(i2047) (Flush Beam)

BC CALC® Member Report

Dry | 1 span | No cant.

March 18, 2021 07:58:45

Build 7773

Job name:

File name: SPRINGFIELD 3 EL 1 10' CEILING.mmdl

Address:

Description: 2ND FLR FRAMING\Flush Beams\B7A(i2047)

City, Province, Postal Code: HAMILTON

Specifier:

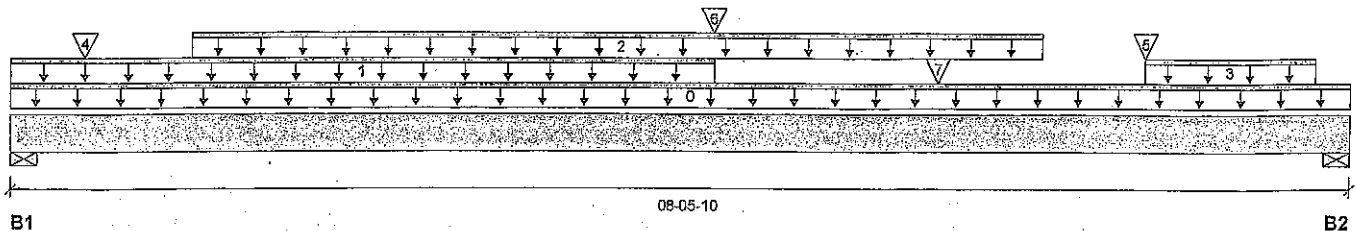
Customer:

Designer: AJ

Code reports:

CCMC 12472-R

Company:



Total Horizontal Product Length = 08-05-10

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/2"	1491 / 0	817 / 0		
B2, 5-1/2"	1300 / 0	724 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	08-05-10	Top		12			00-00-00
1	STAIR	Unf. Lin. (lb/ft)	L	00-00-00	04-04-08	Top	240	120			n/a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	01-01-10	06-05-10	Top	97	48			n/a
3	FC3 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	07-01-10	08-02-14	Top	40	20			n/a
4	J2(i1973)	Conc. Pt. (lbs)	L	00-05-10	00-05-10	Top	114	57			n/a
5	-	Conc. Pt. (lbs)	L	07-01-10	07-01-10	Top	440	221			n/a
6	B8A(i2033)	Conc. Pt. (lbs)	L	04-04-06	04-04-06	Top	210	147			n/a
7	J1(i2013)	Conc. Pt. (lbs)	L	05-09-10	05-09-10	Top	400	200			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	5910 ft-lbs	35392 ft-lbs	16.7%	1	04-04-06
End Shear	2706 lbs	14464 lbs	18.7%	1	07-00-04
Total Load Deflection	L/999 (0.045")	n/a	n/a	4	04-03-08
Live Load Deflection	L/999 (0.029")	n/a	n/a	5	04-03-08
Max Defl.	0.045"	n/a	n/a	4	04-03-08
Span / Depth	7.8				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 5-1/2" x 3-1/2"	3257 lbs	27.5%	13.9%	Spruce-Pine-Fir
B2	Wall/Plate 5-1/2" x 3-1/2"	2855 lbs	24.1%	12.2%	Spruce-Pine-Fir

Notes

Design meets Code minimum (L/240) Total load deflection criteria.

Design meets Code minimum (L/360) Live load deflection criteria.

Resistance Factor phi has been applied to all presented results per CSA O86.

BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

Calculations assume unbraced length of Top: 00-00-00, Bottom: 01-01-08.

CONFORMS TO OBC 2012

AMENDED 2020



ENG NO. TAM 9577 = 21
STRUCTURAL
COMPONENT ONLY



Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP
2ND FLR FRAMING\Flush Beams\B7A(12047) (Flush Beam)

PASSED

BC CALC® Member Report

Dry | 1 span | No cant.

March 18, 2021 07:58:45

Build 7773

Job name:

File name: SPRINGFIELD 3 EL 1 10' CEILING.mmdl

Address:

Description: 2ND FLR FRAMING\Flush Beams\B7A(12047)

City, Province, Postal Code: HAMILTON

Specifier:

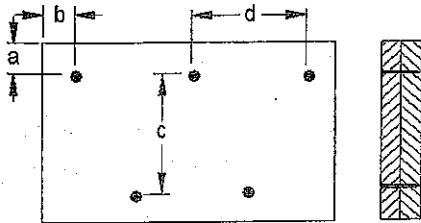
Customer:

Designer: AJ

Code reports: CCMC 12472-R

Company:

Connection Diagram: Full Length of Member



a minimum = 2"

c = 7-7/8"

b minimum = 3"

d = 8"

Calculated Side Load = 674.4 lb/ft

Connectors are: 16d Nails

3 1/2" ARDOX SPIRAL



ENG NO. TAN 9577-21
STRUCTURAL
COMPONENT ONLY

Disclosure

Use of the Boise Cascade Software is subject to the terms of the End User License Agreement (EULA). Completeness and accuracy of input must be reviewed and verified by a qualified engineer or other appropriate expert to assure its adequacy, prior to anyone relying on such output as evidence of suitability for a particular application. The output here is based on building code-accepted design properties and analysis methods. Installation of Boise Cascade engineered wood products must be in accordance with current Installation Guide and applicable building codes. To obtain Installation Guide or ask questions, please call (800)232-0788 before installation.

BC CALC®, BC FRAMER®, AJS™, ALLJOIST®, BC RIM BOARD™, BCi®, BOISE GLULAM™, BC FloorValue®, VERSA-LAM®, VERSA-RIM PLUS®



Single 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP
2ND FLR FRAMING\Flush Beams\B8A(i2033) (Flush Beam)

PASSED

BC CALC® Member Report

Dry | 1 span | No cant.

March 18, 2021 07:58:45

Build 7773

Job name:

File name: SPRINGFIELD 3 EL 1 10' CEILING.mmdl

Address:

Description: 2ND FLR FRAMING\Flush Beams\B8A(i2033)

City, Province, Postal Code: HAMILTON

Specifier:

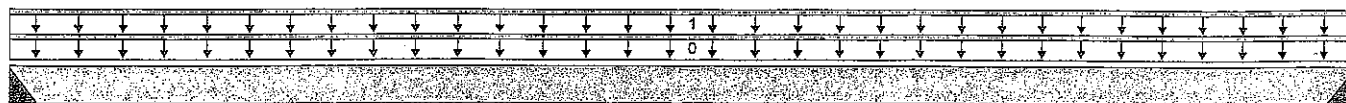
Customer:

Designer: AJ

Code reports:

CCMC 12472-R

Company:



B1 13-11-00 B2
Total Horizontal Product Length = 13-11-00

Reaction Summary (Down / Uplift) (lbs)

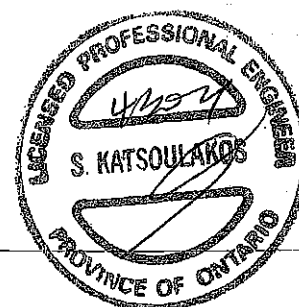
Bearing	Live	Dead	Snow	Wind
B1, 2"	210 / 0	147 / 0		
B2, 2"	210 / 0	147 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	13-11-00	Top	1.00	0.65	1.00	1.15	00-00-00
1	FC3 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	00-00-00	13-11-00	Top	30	15			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	1685 ft-lbs	17696 ft-lbs	9.5%	1	06-11-08
End Shear	416 lbs	7232 lbs	5.8%	1	01-01-14
Total Load Deflection	L/999 (0.084")	n/a	n/a	4	06-11-08
Live Load Deflection	L/999 (0.049")	n/a	n/a	5	06-11-08
Max Defl.	0.084"	n/a	n/a	4	06-11-08
Span / Depth	13.9				



Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Hanger 2" x 1-3/4"	499 lbs	n/a	11.7%	HUS1.81/10
B2	Hanger 2" x 1-3/4"	499 lbs	n/a	11.7%	HUS1.81/10

QWS NO. TAM 9578-21
STRUCTURAL
COMPONENT ONLY

Cautions

Header for the hanger HUS1.81/10 is a Double 1-3/4" x 11-7/8" LVL Beam.

Hanger model HUS1.81/10 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.

Notes

Design meets Code minimum (L/240) Total load deflection criteria.

Design meets Code minimum (L/360) Live load deflection criteria.

Hanger Manufacturer: Unassigned

Resistance Factor phi has been applied to all presented results per CSA O86.

BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

Calculations assume unbraced length of Top: 00-00-00, Bottom: 13-11-00.

CONFORMS TO OBC 2012

AMENDED 2020

Disclosure

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BC CALC®, BC FRAMER®, AJST®, ALLJOIST®, BC RIM BOARD™, BCI®, BOISE GLULAM™, BC FloorValue®, VERSA-LAM®, VERSA-RIM PLUS®,



Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP 2ND FLR FRAMING\Dropped Beams\B13C(i2553) (Dropped Beam)

PASSED

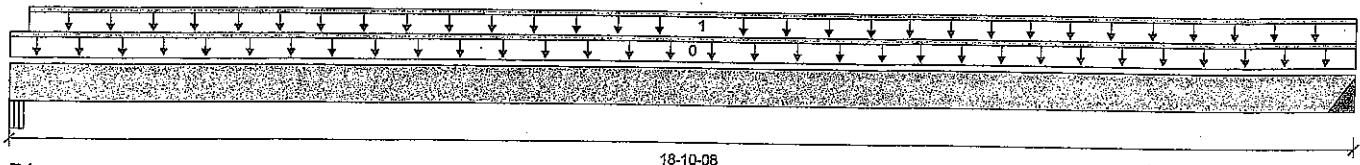
BC CALC® Member Report
Build 7773

Dry | 1 span | No cant.

March 18, 2021 09:00:09

Job name:
Address:
City, Province, Postal Code: HAMILTON
Customer:
Code reports: CCMC 12472-R

File name: SPRINGFIELD 3 EL 3 10' CEILING.mmdl
Description: 2ND FLR FRAMING\Dropped Beams\B13C(i2553)
Specifier:
Designer: AJ
Company:



B1

18-10-08

B2

Total Horizontal Product Length = 18-10-08

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3"		373 / 0	452 / 0	
B2, 2"		376 / 0	460 / 0	

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	18-10-08	Top		12			00-00-00
1	LOW ROOF	Unf. Lin. (lb/ft)	L	00-03-00	18-10-08	Top		28	49		n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	5333 ft-lbs	10545 ft-lbs	50.6%	1	09-05-12
End Shear	1018 lbs	14464 lbs	7.0%	1	01-02-14
Total Load Deflection	L/912 (0.245")	n/a	26.3%	12	09-05-12
Live Load Deflection	L/1657 (0.135")	n/a	21.7%	17	09-05-12
Max Defl.	0.245"	n/a	n/a	12	09-05-12
Span / Depth	18.8				

Bearing Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1 Beam	3" x 3-1/2"	1144 lbs	17.7%	8.9%	Spruce-Pine-Fir
B2 Hanger	2" x 3-1/2"	1161 lbs	n/a	13.6%	HUC410

Cautions

Header for the hanger HUC410 is a Double 1-3/4" x 11-7/8" LVL Beam.
Hanger model HUC410 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.

Notes

Design meets Code minimum (L/240) Total load deflection criteria.

Design meets Code minimum (L/360) Live load deflection criteria.

Hanger Manufacturer: Unassigned

Resistance Factor phi has been applied to all presented results per CSA O86.

BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Unbalanced snow loads determined from building geometry were used in selected product's verification.

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

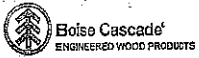
Calculations assume unbraced length of Top: 18-10-08, Bottom: 18-07-08.

CONFORMS TO OBC 2012

AMENDED 2020



OWS NO. YAM 9579-21
STRUCTURAL
COMPONENT ONLY



Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP

PASSED

2ND FLR FRAMING\Dropped Beams\B13C(i2553) (Dropped Beam)

Dry | 1 span | No cant

March 18, 2021 09:00:09

BC CALC® Member Report

Build 7773

Job name:

Address:

City, Province, Postal Code: HAMILTON

Customer:

Code reports: CCMC 12472-R

File name: SPRINGFIELD 3 EL 3 10' CEILING.mmdl

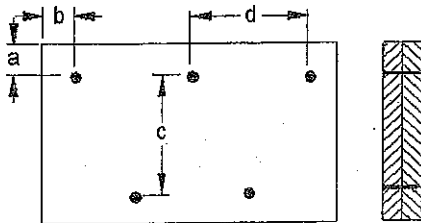
Description: 2ND FLR FRAMING\Dropped Beams\B13C(i2553)

Specifier:

Designer: AJ

Company:

Connection Diagram: Full Length of Member



a minimum = 2"

c = 7-7/8"

b minimum = 3"

d = 8"

Connectors are:

Nails

3 1/2" ARBOX SPIRAL

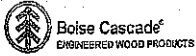


Aug 10, 2019 9:21
STRUCTURAL
COMPONENT ONLY

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BC CALC®, BC FRAMER®, AJS™, ALLJOIST®, BC RIM BOARD™, BCI®, BOISE GLULAM™, BC FloorValue®, VERSA-LAM®, VERSA-RIM PLUS®,



Single 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP
1ST FLR FRAMING\Flush Beams\B4S(i2038) (Flush Beam)

PASSED

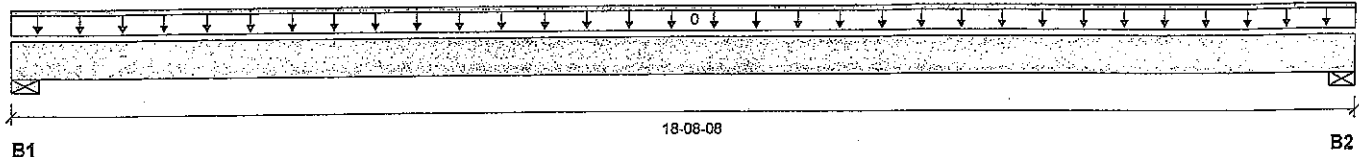
BC CALC® Member Report
 Build 7773

Dry | 1 span | No cant.

March 19, 2021 08:17:02

Job name:
 Address:
 City, Province, Postal Code: HAMILTON
 Customer:
 Code reports: CCMC 12472-R

File name: SPRINGFIELD 3S EL 1.mmdl
 Description: 1ST FLR FRAMING\Flush Beams\B4S(i2038)
 Specifier:
 Designer: AJ
 Company:



Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"		55 / 0		
B2, 8"		57 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	18-08-08	Top	1.00	0.65	1.00	1.15	00-00-00

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	336 ft-lbs	2803 ft-lbs	12.0%	0	09-02-00
End Shear	66 lbs	4701 lbs	1.4%	0	01-03-06
Total Load Deflection	L/999 (0.028")	n/a	n/a	1	09-02-00
Max Defl.	0.028"	n/a	n/a	1	09-02-00
Span / Depth	18.1				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 3-1/2" x 1-3/4"	77 lbs	1.4%	1.6%	Unspecified
B2	Wall/Plate 8" x 1-3/4"	80 lbs	0.6%	0.7%	Unspecified

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
 Resistance Factor phi has been applied to all presented results per CSA O86.
 BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.
 Design based on Dry Service Condition.
 Importance Factor : Normal Part code : Part 9
 Calculations assume unbraced length of Top: 17-09-00, Bottom: 17-09-00.

CONFORMS TO CBC 2012

AMENDED 2020



DWG NO. TAM 2580-21
STRUCTURAL
COMPONENT ONLY

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BC CALC®, BC FRAMER®, AJSTM, ALLJOIST®, BC RIM BOARD™, BCI®, BOISE GLULAM™, BC FloorValue®, VERSA-LAM®, VERSA-RIM PLUS®,

**Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP****PASSED****2ND FLR FRAMING\Flush Beams\B11C(i2549) (Flush Beam)**

BC CALC® Member Report

Dry | 1 span | L cant.

March 18, 2021 09:00:09

Build 7773

Job name:

File name: SPRINGFIELD 3 EL 3 10' CEILING.mmdl

Address:

Description: 2ND FLR FRAMING\Flush Beams\B11C(i2549)

City, Province, Postal Code: HAMILTON

Specifier:

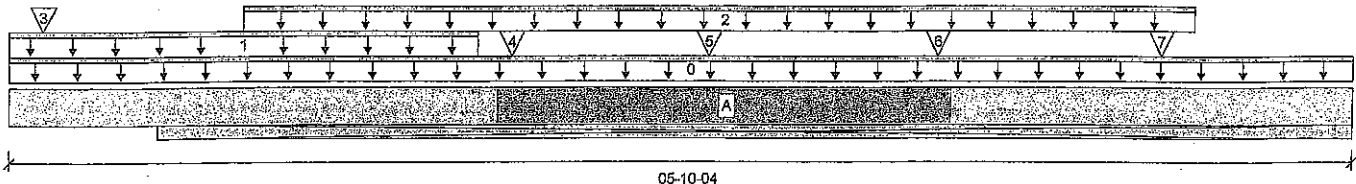
Customer:

Designer: AJ

Code reports:

CCMC 12472-R

Company:



Total Horizontal Product Length = 05-10-04

B1

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 62-3/4"	1459 / 0	1230 / 0	555 / 0	

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	05-10-04	Top		12			00-00-00
1	LOW ROOF	Unf. Lin. (lb/ft)	L	00-00-00	02-00-02	Top		28	49		n/a
2	FC3 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	01-00-00	05-01-12	Top	13	6			n/a
3	B13C(i2553)	Conc. Pt. (lbs)	L	00-01-12	00-01-12	Top		373	456		n/a
4	J3(i2480)	Conc. Pt. (lbs)	L	02-01-14	02-01-14	Top	305	153			n/a
5	J3(i2479)	Conc. Pt. (lbs)	L	03-00-00	03-00-00	Top	346	173			n/a
6	J3(i2235)	Conc. Pt. (lbs)	L	04-00-00	04-00-00	Top	376	188			n/a
7	J3(i2416)	Conc. Pt. (lbs)	L	05-00-00	05-00-00	Top	376	188			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Neg. Moment	-577 ft-lbs	-35392 ft-lbs	1.6%	13	00-07-08
End Shear	1227 lbs	14464 lbs	8.5%	13	00-07-08
Total Load Deflection	2xL/1998 (0")	n/a	n/a	35	00-00-00
Live Load Deflection	2xL/1998 (0")	n/a	n/a	51	00-00-00
Span / Depth	0.6				
Dist. Load (B1)	128.81 lb/ft	57645.1 lb/ft	0.2%		
Conc. Load (B1)	799 lbs	16813 lbs	4.8%		

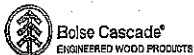
Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 62-3/4" x 3-1/2"	4281 lbs	3.2%	1.6%	Spruce-Pine-Fir

Cautions

Concentrated side load(s) 6 are closer than 18" from end of member. Please consult a technical representative or Professional of Record.





Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP 2ND FLR FRAMING\Flush Beams\B11C(12549) (Flush Beam)

PASSED

BC CALC® Member Report
Build 7773

Dry | 1 span | L cant.

March 18, 2021 09:00:09

Job name:
Address:
City, Province, Postal Code: HAMILTON
Customer:
Code reports: CCMC 12472-R

File name: SPRINGFIELD 3 EL 3 10' CEILING.mmdl
Description: 2ND FLR FRAMING\Flush Beams\B11C(12549)
Specifier:
Designer: AJ
Company:

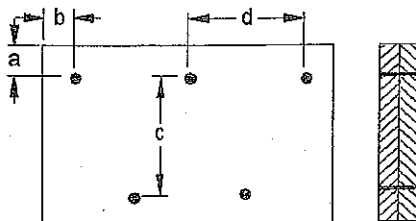
Notes

Design meets User specified (2xL/240) Total load deflection criteria.
Design meets User specified (2xL/360) Live load deflection criteria.
Resistance Factor phi has been applied to all presented results per CSA O86.
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.
Unbalanced snow loads determined from building geometry were used in selected product's verification.
Design based on Dry Service Condition.
Importance Factor : Normal Part code : Part 9
Cantilevers require sheathed bottom flanges, blocking at cantilever support and closure at ends.
Calculations assume unbraced length of Top: 00-08-08, Bottom: 00-08-08.

CONFORMS TO OBC 2012

AMENDED 2020

Connection Diagram: Full Length of Member



a minimum = 2"
b minimum = 3"
c = 7-7/8"
d = 8"

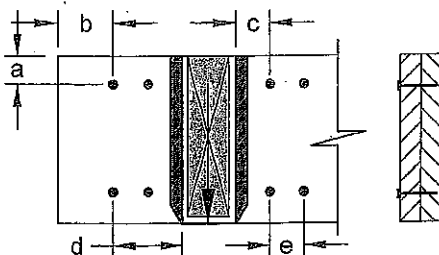
Calculated Side Load = 399.5 lb/ft

Connectors are: 16d Nails

3 1/2" ARDOX SPIRAL

Connection Diagrams: Concentrated Side Loads

Connection Tag: A Applies to load tag(s): 12+13+14



a minimum = 2"
b minimum = 4"
c minimum = 4"
d maximum = 12"
e minimum = 4"
Connectors are:
Nails

3 1/2" ARDOX SPIRAL



STRUCTURAL
COMPONENT ONLY

Disclosure

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Installation of Boise Cascade engineered wood products must be in accordance with current Installation Guide and applicable building codes. To obtain Installation Guide or ask questions, please call (800)232-0788 before installation.

BC CALC®, BC FRAMER®, AJS™, ALLJOIST®, BC RIM BOARD™, BCI®, BOISE GLULAM™, BC FloorValue®, VERSA-LAM®, VERSA-RIM PLUS®,



Triple 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP
2ND FLR FRAMING\Dropped Beams\B5 DR(i2016) (Dropped Beam)

PASSED

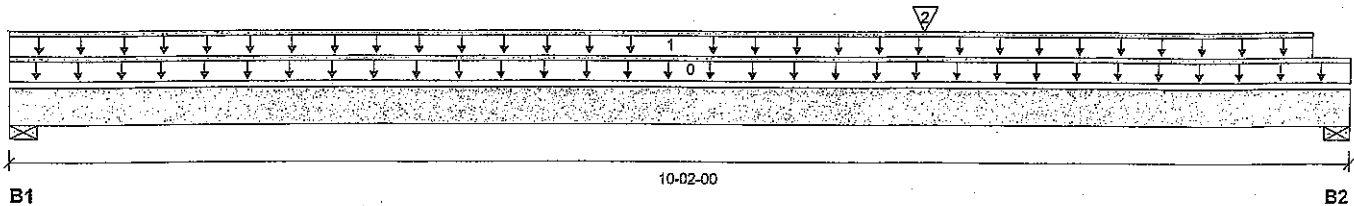
BC CALC® Member Report
Build 7773

Dry | 1 span | No cant.

April 29, 2021 07:43:58

Job name:
Address:
City, Province, Postal Code: HAMILTON
Customer:
Code reports: CCMC 12472-R

File name: SPRINGFIELD 3 EL 1.mmdl
Description: 2ND FLR FRAMING\Dropped Beams\B5 DR(i2016)
Specifier:
Designer: AJ
Company:



Total Horizontal Product Length = 10-02-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 4"	2594 / 0	1392 / 0		
B2, 4"	3198 / 0	1719 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	10-02-00	Top	1.00	0.65	1.00	1.15	00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	00-00-00	09-10-06	Top	373	187			n/a
2	B6(i2009)	Conc. Pt. (lbs)	L	06-10-04	06-10-04	Top	2112	1125			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	17479 ft-lbs	36222 ft-lbs	48.3%	1	06-10-04
End Shear	6606 lbs	17356 lbs	38.1%	1	09-00-08
Total Load Deflection	L/445 (0.259")	n/a	53.9%	4	05-02-14
Live Load Deflection	L/684 (0.169")	n/a	52.6%	5	05-02-14
Max Defl.	0.259"	n/a	n/a	4	05-02-14
Span / Depth	12.2				

Bearing Supports

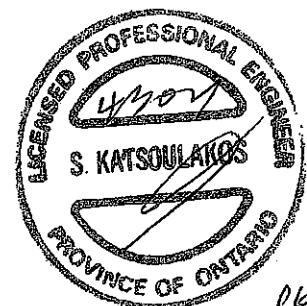
	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 4" x 5-1/4"	5632 lbs	20.1%	22.0%	Spruce-Pine-Fir
B2	Wall/Plate 4" x 5-1/4"	6946 lbs	24.8%	27.1%	Spruce-Pine-Fir

Notes

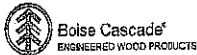
Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Resistance Factor phi has been applied to all presented results per CSA O86.
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.
Design based on Dry Service Condition.
Importance Factor : Normal Part code : Part 9
Calculations assume unbraced length of Top: 00-08-08, Bottom: 10-02-00.

CONFORMS TO OBB 2012

AMENDED 2020



ENG NO. T449582-21
STRUCTURAL
COMPONENT ONLY



Triple 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP

PASSED

2ND FLR FRAMING\Dropped Beams\B5 DR(2016) (Dropped Beam)

BC CALC® Member Report

Dry | 1 span | No cant.

April 29, 2021 07:43:58

Build 7773

Job name:

File name: SPRINGFIELD 3 EL 1.mmdl

Address:

Description: 2ND FLR FRAMING\Dropped Beams\B5 DR(2016)

City, Province, Postal Code: HAMILTON

Specifier:

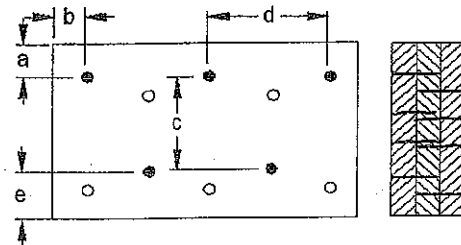
Customer:

Designer: AJ

Code reports: CCMC 12472-R

Company:

Connection Diagram: Full Length of Member



a minimum = 4"
b minimum = 3"

c = 6-1/2"
d = 8"
e minimum = 2"

Nailing applies to both sides of the member

Connectors are: 1" Nails

3 1/2" ARDOX SPIRAL



OWG NO. YAN 9501-21
STRUCTURAL
COMPONENT ONLY

Disclosure

Use of the Boise Cascade Software is subject to the terms of the End User License Agreement (EULA). Completeness and accuracy of input must be reviewed and verified by a qualified engineer or other appropriate expert to assure its adequacy, prior to anyone relying on such output as evidence of suitability for a particular application. The output here is based on building code-accepted design properties and analysis methods. Installation of Boise Cascade engineered wood products must be in accordance with current Installation Guide and applicable building codes. To obtain Installation Guide or ask questions, please call (800)232-0788 before installation.

BC CALC®, BC FRAMER®, AJS™, ALLJOIST®, BC RIM BOARD™, BCI®, BOISE GLULAM™, BC FloorValue®, VERSA-LAM®, VERSA-RIM PLUS®,

NORDIC STRUCTURES

COMPANY
Mar. 18, 2021 09:06

PROJECT
J1 1ST FLOOR.wwb

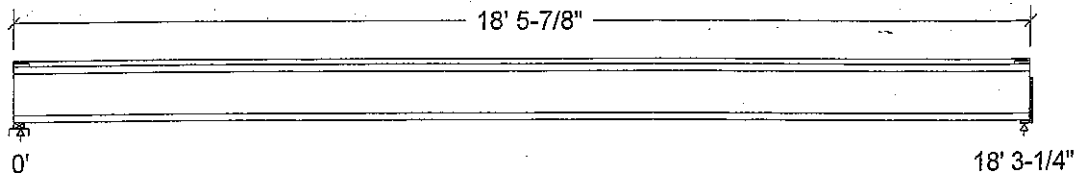
Design Check Calculation Sheet

Nordic Sizer – Canada 7.2

Loads:

Load	Type	Distribution	Pat- tern	Location [ft] Start End	Magnitude Start End	Unit
Load1	Dead	Full Area			20.00	psf
Load2	Live	Full Area			40.00	psf

Maximum Reactions (lbs) and Support Bearing (in):



Unfactored:			
Dead	183		183
Live	365		365
Factored:			
Total	777		777
Bearing:			
Capacity			
Joist	2101		2048
Support	3971		-
Des ratio			
Joist	0.37		0.38
Support	0.20		-
Load case	#2		#2
Length	2-3/8		2
Min req'd	1-3/4		1-3/4
Stiffener	No		No
KD	1.00		1.00
KB support	1.00		-
fcp sup	769		-
Kzcp sup	1.09		-

Nordic Joist 11-7/8" NI-40x Floor joist @ 12" o.c.

Supports: 1 - Lumber Sill plate, No.1/No.2; 2 - Hanger;

Total length: 18' 5-7/8"; Clear span: 18' 1-1/2"; 3/4" nailed and glued OSB sheathing

This section PASSES the design code check.



DOB NO. YAM9565-21
STRUCTURAL
COMPONENT ONLY

Limit States Design using CSA O86-14 and Vibration Criterion:

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	$V_f = 777$	$V_r = 2336$	lbs	$V_f/V_r = 0.33$
Moment(+)	$M_f = 3547$	$M_r = 6255$	lbs-ft	$M_f/M_r = 0.57$
Perm. Defl'n	$0.13 = < L/999$	$0.61 = L/360$	in	0.21
Live Defl'n	$0.25 = L/869$	$0.46 = L/480$	in	0.55
Total Defl'n	$0.38 = L/579$	$0.91 = L/240$	in	0.41
Bare Defl'n	$0.30 = L/740$	$0.61 = L/360$	in	0.49
Vibration	$L_{max} = 18'-3.3$	$L_v = 19'-6.3$	ft	0.94
Defl'n	$= 0.029$	$= 0.034$	in	0.85

Additional Data:

FACTORS:	f/E	KD	KH	KZ	KL	KT	KS	KN	LC#
Vr	2336	1.00	1.00	-	-	-	-	-	#2
Mr+	6255	1.00	1.00	-	1.000	-	-	-	#2
EI	371.1 million	-	-	-	-	-	-	-	#2

CRITICAL LOAD COMBINATIONS:

Shear : LC #2 = 1.25D + 1.5L

Moment(+) : LC #2 = 1.25D + 1.5L

Deflection: LC #1 = 1.0D (permanent)

LC #2 = 1.0D + 1.0L (live)

LC #2 = 1.0D + 1.0L (total)

LC #2 = 1.0D + 1.0L (bare joist)

Bearing : Support 1 - LC #2 = 1.25D + 1.5L

Support 2 - LC #2 = 1.25D + 1.5L

Load Types: D=dead W=wind S=snow H=earth,groundwater E=earthquake

L=live(use,occupancy) Ls=live(storage,equipment) f=fire

Load Patterns: s=S/2 L=L+Ls =no pattern load in this span

All Load Combinations (LCs) are listed in the Analysis output

CALCULATIONS: $EI_{eff} = 443.45 \text{ lb-in}^2 \quad K = 6.18e06 \text{ lbs}$

"Live" deflection is due to all non-dead loads (live, wind, snow...)

CONFORMS TO OBC 2012**Design Notes:****AMENDED 2020**

1. WoodWorks analysis and design are in accordance with the 2015 National Building Code of Canada (NBC), Division B, Part 4, and the CSA O86-14 Engineering Design in Wood standard, Update No. 2 (June 2017).
2. Please verify that the default deflection limits are appropriate for your application.
3. Refer to Nordic Structures technical documentation for installation guidelines and construction details.
4. Nordic I-joists are listed in CCMC evaluation report 13032-R.
5. Joists shall be laterally supported at supports and continuously along the compression edge.
6. The design assumptions and specifications have been provided by the client. Any damages resulting from faulty or incorrect information, specifications, and/or designs furnished, and the correctness or accuracy of this information is their responsibility. This analysis does not constitute a record of the structural integrity of the building nor suitability of the design assumptions made. Nordic Structures is responsible only for the structural adequacy of this component based on the design criteria and loadings shown.



DWG NO. TAM 9565-21
 STRUCTURAL
 COMPONENT ONLY

NORDIC STRUCTURES

COMPANY
Mar. 18, 2021 09:06

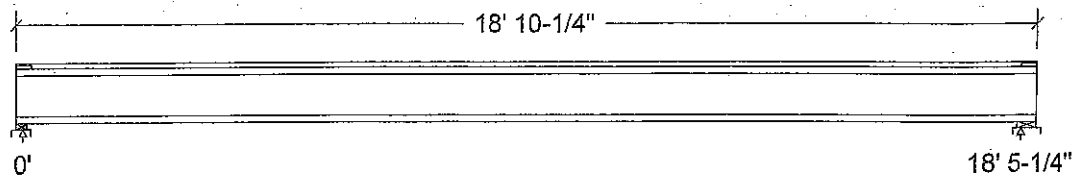
PROJECT
J6 1ST FLOOR.wwb

Design Check Calculation Sheet Nordic Sizer – Canada 7.2

Loads:

Load	Type	Distribution	Pat-tern	Location [ft] Start End	Magnitude Start End	Unit
Load1	Dead	Full Area			20.00	psf
Load2	Live	Full Area			40.00	psf

Maximum Reactions (lbs) and Support Bearing (in):



Unfactored:			
Dead	184		184
Live	369		369
Factored:			
Total	784		784
Bearing:			
Capacity			
Joist	2188		2336
Support	5573		10841
Des ratio			
Joist	0.36		0.34
Support	0.14		0.07
Load case	#2		#2
Length	2-3/8		4-3/8
Min req'd	1-3/4		1-3/4
Stiffener	No		No
KD	1.00		1.00
KB support	1.00		1.00
fcp sup	769		769
Kzcp sup	1.09		1.15

Nordic Joist 11-7/8" NI-80 Floor joist @ 12" o.c.

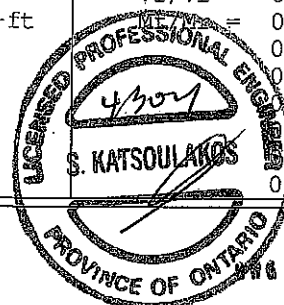
Supports: All - Lumber Sill plate, No.1/No.2

Total length: 18' 10-1/4"; Clear span: 18' 3-1/2"; 3/4" nailed and glued OSB sheathing

This section PASSES the design code check.

Limit States Design using CSA O86-14 and Vibration Criterion:

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	Vf = 784	Vr = 2336	lbs	Vf/Vr = 0.34
Moment(+)	Mf = 3612	Mr = 11609	lbs-ft	Mf/Mr = 0.31
Perm. Defl'n	0.10 = < L/999	0.61 = L/360	in	0.16
Live Defl'n	0.19 = < L/999	0.46 = L/480	in	0.42
Total Defl'n	0.29 = L/765	0.92 = L/240	in	0.31
Bare Defl'n	0.22 = < L/999	0.61 = L/360	in	0.35
Vibration	Lmax = 18'-5.3	Lv = 21'-2.7	ft	0.87
Defl'n	= 0.024	= 0.034	in	0.71



NO. 9566-21
STRUCTURAL
COMPONENT ONLY

Additional Data:

FACTORS:	f/E	KD	KH	KZ	KL	KT	KS	KN	LC#
Vr	2336	1.00	1.00	-	-	-	-	-	#2
Mr+	11609	1.00	1.00	-	1.000	-	-	-	#2
EI	547.1 million	-	-	-	-	-	-	-	#2

CRITICAL LOAD COMBINATIONS:

Shear : LC #2 = 1.25D + 1.5L

Moment(+) : LC #2 = 1.25D + 1.5L

Deflection: LC #1 = 1.0D (permanent)

LC #2 = 1.0D + 1.0L (live)

LC #2 = 1.0D + 1.0L (total)

LC #2 = 1.0D + 1.0L (bare joist)

Bearing : Support 1 - LC #2 = 1.25D + 1.5L

Support 2 - LC #2 = 1.25D + 1.5L

Load Types: D=dead W=wind S=snow H=earth, groundwater E=earthquake
L=live (use, occupancy) Ls=live (storage, equipment) f=fire

Load Patterns: s=S/2 L=L+Ls _=no pattern load in this span

All Load Combinations (LCs) are listed in the Analysis output

CALCULATIONS:E_{leff} = 625.37 lb-in² K= 6.18e06 lbs"Live" deflection is due to all non-dead loads (live, wind, snow...) **CONFORMS TO OBC 2012****Design Notes:****AMENDED 2020**

1. WoodWorks analysis and design are in accordance with the 2015 National Building Code of Canada (NBC), Division B, Part 4, and the CSA O86-14 Engineering Design in Wood standard, Update No. 2 (June 2017).
2. Please verify that the default deflection limits are appropriate for your application.
3. Refer to Nordic Structures technical documentation for installation guidelines and construction details.
4. Nordic I-joists are listed in CCMC evaluation report 13032-R.
5. Joists shall be laterally supported at supports and continuously along the compression edge.
6. The design assumptions and specifications have been provided by the client. Any damages resulting from faulty or incorrect information, specifications, and/or designs furnished, and the correctness or accuracy of this information is their responsibility. This analysis does not constitute a record of the structural integrity of the building nor suitability of the design assumptions made. Nordic Structures is responsible only for the structural adequacy of this component based on the design criteria and loadings shown.



DWG NO. TAM 9566-21
 STRUCTURAL
 COMPONENT ONLY

NORDIC STRUCTURES

COMPANY
Mar. 18, 2021 09:07

PROJECT
J3 2ND FLOOR.wwb

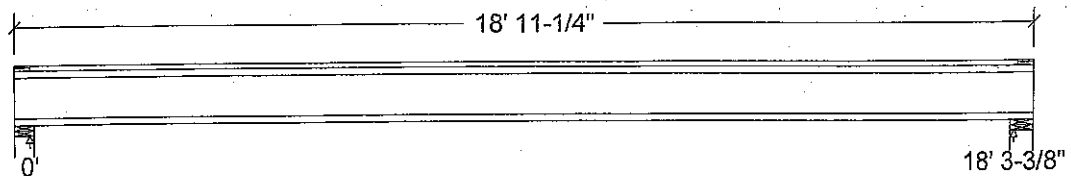
Design Check Calculation Sheet

Nordic Sizer – Canada 7.2

Loads:

Load	Type	Distribution	Pat-tern	Location [ft] Start End	Magnitude Start End	Unit
Load1	Dead	Full Area			20.00	psf
Load2	Live	Full Area			40.00	psf

Maximum Reactions (lbs) and Support Bearing (in):



Unfactored:			
Dead	183		183
Live	366		366
Factored:			
Total	777		777
Bearing:			
Capacity			
Joist	2336		2336
Support	10829		12995
Des ratio			
Joist	0.33		0.33
Support	0.07		0.06
Load case	#2		#2
Length	4-3/8		5-1/4
Min req'd	1-3/4		1-3/4
Stiffener	No		No
KD	1.00		1.00
KB support	-		-
fcp sup	769		769
Kzcp sup	-		-

Bearing for wall supports is perpendicular-to-grain bearing on top plate. No stud design included.

Nordic Joist 11-7/8" NI-80 Floor joist @ 12" o.c.

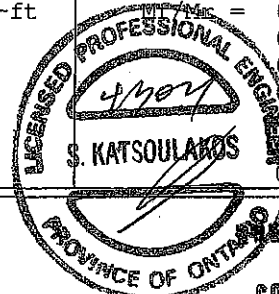
Supports: All - Lumber Wall, No.1/No.2

Total length: 18' 11-1/4"; Clear span: 18' 1-5/8"; 5/8" nailed and glued OSB sheathing with 1/2" gypsum ceiling

This section PASSES the design code check.

Limit States Design using CSA O86-14 and Vibration Criterion:

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	Vf = 777	Vr = 2336	lbs	Vf/Vr = 0.33
Moment(+)	Mf = 3551	Mr = 11609	lbs-ft	Mf/Mr = 0.31
Perm. Defl'n	0.09 = < L/999	0.61 = L/360	in	0.16
Live Defl'n	0.19 = < L/999	0.46 = L/480	in	0.42
Total Defl'n	0.28 = L/770	0.91 = L/240	in	0.31
Bare Defl'n	0.21 = < L/999	0.61 = L/360	in	0.34
Vibration	Lmax = 18'-3.4	Lv = 20'-5.8	ft	0.89
Defl'n	= 0.026	= 0.034	in	0.76



NO. TAM 9567-21
STRUCTURAL
COMPONENT ONLY

Additional Data:

FACTORS:	f/E	KD	KH	KZ	KL	KT	KS	KN	LC#
Vr	2336	1.00	1.00	-	-	-	-	-	#2
Mr+	11609	1.00	1.00	-	1.000	-	-	-	#2
EI	547.1 million	-	-	-	-	-	-	-	#2

CRITICAL LOAD COMBINATIONS:

Shear : LC #2 = 1.25D + 1.5L

Moment (+) : LC #2 = 1.25D + 1.5L

Deflection: LC #1 = 1.0D (permanent)

LC #2 = 1.0D + 1.0L (live)

LC #2 = 1.0D + 1.0L (total)

LC #2 = 1.0D + 1.0L (bare joist)

Bearing : Support 1 - LC #2 = 1.25D + 1.5L

Support 2 - LC #2 = 1.25D + 1.5L

Load Types: D=dead W=wind S=snow H=earth, groundwater E=earthquake

L=live (use, occupancy) Ls=live (storage, equipment) f=fire

Load Patterns: s=S/2 L=L+Ls _=no pattern load in this span

All Load Combinations (LCs) are listed in the Analysis output

CALCULATIONS:EI_{eff} = 613.27 lb-in² K = 6.18e06 lbs

"Live" deflection is due to all non-dead loads (live, wind, snow...)

CONFORMS TO OBC 2012

Design Notes:

AMENDED 2020

1. WoodWorks analysis and design are in accordance with the 2015 National Building Code of Canada (NBC), Division B, Part 4, and the CSA O86-14 Engineering Design in Wood standard, Update No. 2 (June 2017).
2. Please verify that the default deflection limits are appropriate for your application.
3. Refer to Nordic Structures technical documentation for installation guidelines and construction details.
4. Nordic I-joists are listed in CCMC evaluation report 13032-R.
5. Joists shall be laterally supported at supports and continuously along the compression edge.
6. The design assumptions and specifications have been provided by the client. Any damages resulting from faulty or incorrect information, specifications, and/or designs furnished, and the correctness or accuracy of this information is their responsibility. This analysis does not constitute a record of the structural integrity of the building nor suitability of the design assumptions made. Nordic Structures is responsible only for the structural adequacy of this component based on the design criteria and loadings shown.



ONE NO. TAN 9567-21
STRUCTURAL
COMPONENT ONLY

NORDIC STRUCTURES

COMPANY
Mar. 18, 2021 09:08

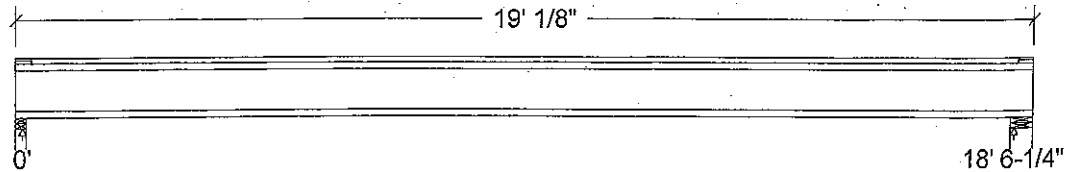
PROJECT
J3 2ND FLOOR ABOVE GARAGE.wwb

Design Check Calculation Sheet Nordic Sizer – Canada 7.2

Loads:

Load	Type	Distribution	Pat-tern	Location [ft] Start End	Magnitude Start End	Unit
Load1	Dead	Full Area			20.00	psf
Load2	Live	Full Area			40.00	psf

Maximum Reactions (lbs) and Support Bearing (in):



Unfactored:			
Dead	185		185
Live	370		370
Factored:			
Total	787		787
Bearing:			
Capacity			
Joist	2188		2336
Support	5573		12995
Des ratio			
Joist	0.36		0.34
Support	0.14		0.06
Load case	#2		#2
Length	2-3/8		5-1/4
Min req'd	1-3/4		1-3/4
Stiffener	No		No
KD	1.00		1.00
KB support	-		-
fcp sup	769		769
Kzcp sup	-		-

Bearing for wall supports is perpendicular-to-grain bearing on top plate. No stud design included.

Nordic Joist 11-7/8" NI-80 Floor joist @ 12" o.c.

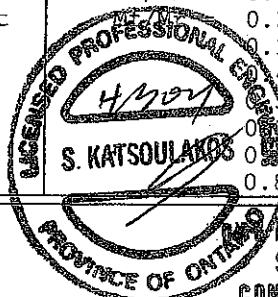
Supports: All - Lumber Wall, No.1/No.2

Total length: 19' 1/8"; Clear span: 18' 4-1/2"; 5/8" nailed and glued OSB sheathing

This section PASSES the design code check.

Limit States Design using CSA O86-14 and Vibration Criterion:

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	Vf = 787	Vr = 2336	lbs	Vf/Vr = 0.34
Moment(+)	Mf = 3645	Mr = 11609	lbs-ft	0.31
Perm. Defl'n	0.10 = < L/999	0.62 = L/360	in	0.16
Live Defl'n	0.20 = < L/999	0.46 = L/480	in	0.43
Total Defl'n	0.30 = L/743	0.93 = L/240	in	0.32
Bare Defl'n	0.22 = < L/999	0.62 = L/360	in	0.36
Vibration	Lmax = 18'-6.3	Lv = 19'-11	ft	0.33
Defl'n	= 0.028	= 0.034	in	0.84



NO. TAN 9568-21
STRUCTURAL
COMPONENT ONLY

Additional Data:

FACTORS:	f/E	KD	KH	KZ	KL	KT	KS	KN	LC#
Vr	2336	1.00	1.00	-	-	-	-	-	#2
Mr+	11609	1.00	1.00	-	1.000	-	-	-	#2
EI	547.1 million	-	-	-	-	-	-	-	#2

CRITICAL LOAD COMBINATIONS:

Shear : LC #2 = 1.25D + 1.5L

Moment(+) : LC #2 = 1.25D + 1.5L

Deflection: LC #1 = 1.0D (permanent)

LC #2 = 1.0D + 1.0L (live)

LC #2 = 1.0D + 1.0L (total)

LC #2 = 1.0D + 1.0L (bare joist)

Bearing : Support 1 - LC #2 = 1.25D + 1.5L

Support 2 - LC #2 = 1.25D + 1.5L

Load Types: D=dead W=wind S=snow H=earth, groundwater E=earthquake
L=live (use, occupancy) Ls=live (storage, equipment) f=fire

Load Patterns: s=S/2 L=L+Ls _=no pattern load in this span

All Load Combinations (LCs) are listed in the Analysis output

CALCULATIONS:EI_{eff} = 613.27 lb-in² K= 6.18e06 lbs"Live" deflection is due to all non-dead loads (live, wind, snow...) **CONFORMS TO OBC 2012****Design Notes:****AMENDED 2020**

1. WoodWorks analysis and design are in accordance with the 2015 National Building Code of Canada (NBC), Division B, Part 4, and the CSA O86-14 Engineering Design in Wood standard, Update No. 2 (June 2017).

2. Please verify that the default deflection limits are appropriate for your application.

3. Refer to Nordic Structures technical documentation for installation guidelines and construction details.

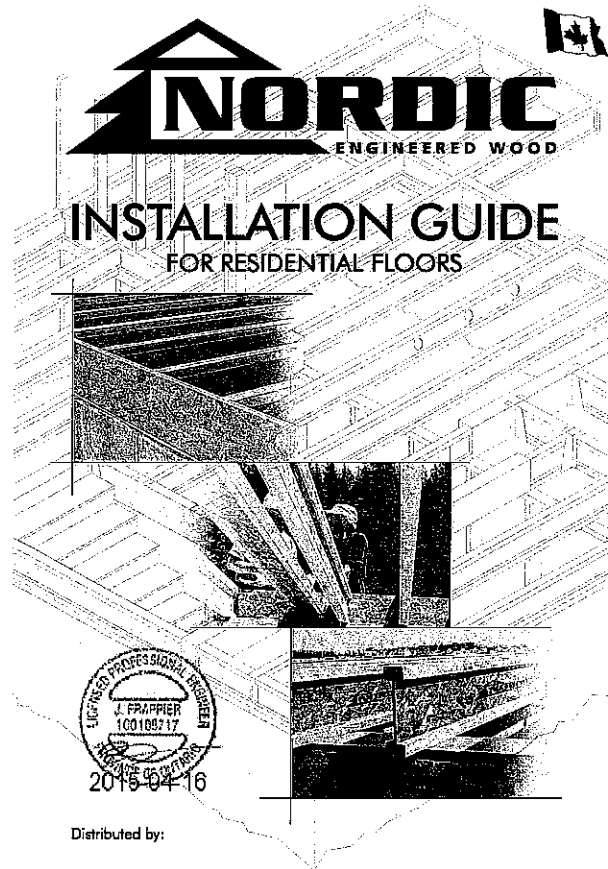
4. Nordic I-joists are listed in CCMC evaluation report 13032-R.

5. Joists shall be laterally supported at supports and continuously along the compression edge.

6. The design assumptions and specifications have been provided by the client. Any damages resulting from faulty or incorrect information, specifications, and/or designs furnished, and the correctness or accuracy of this information is their responsibility. This analysis does not constitute a record of the structural integrity of the building nor suitability of the design assumptions made. Nordic Structures is responsible only for the structural adequacy of this component based on the design criteria and loadings shown.



REG NO. TAM 9568-21
STRUCTURAL
COMPONENT ONLY



Distributed by:



SAFETY AND CONSTRUCTION PRECAUTIONS



Do not walk on I-joists until fully fastened and braced, or serious injuries can result.



Never shock building materials or unbraced I-joists. Once sheathed, do not over-stress I-joist with concentrated loads from building materials.

WARNING

I-joists are not stable until completely installed, and will not carry any load until fully braced and sheathed.

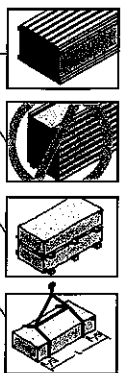
Avoid Accidents by Following these Important Guidelines:

1. Brace and nail each I-joist as it is installed, using hangers, blocking panels, rim board, and/or cross-bracing at joist ends. When I-joists are applied continuously over interior supports and a load-bearing wall is planned at that location, blocking will be required at the interior support.
2. When the building is completed, the floor sheathing will provide lateral support for the top flanges of the I-joists. Until this sheathing is applied, temporary bracing, often called struts, or temporary sheathing must be applied to prevent I-joist rollover or buckling.
 - Temporary bracing or struts must be 1x4 inch minimum, at least 8 feet long and spaced no more than 8 feet on centre, and must be secured with a minimum of two 2-1/2" nails fastened to the top surface of each I-joist. Nail the bracing to a lateral restraint at the end of each bay. Lap ends of adjoining bracing over at least two I-joists.
 - Or, sheathing (temporary or permanent) can be nailed to the top flange of the first 4 feet of I-joists at the end of the bay.
3. For cantilevered I-joists, brace top and bottom flanges, and brace ends with closure panels, rim board, or cross-bracing.
4. Install and fully nail permanent sheathing to each I-joist before placing loads on the floor system. Then, stack building materials over beams or walls only.
5. Never install a damaged I-joist.

Improper storage or installation, failure to follow applicable building codes, failure to follow span ratings for Nordic I-joists, failure to follow allowable hole sizes and locations, or failure to use web stiffeners when required can result in serious accidents. Follow these installation guidelines carefully.

STORAGE AND HANDLING GUIDELINES

1. Bundle wrap can be slippery when wet. Avoid walking on wrapped bundles.
2. Store, stack, and handle I-joists vertically and level only.
3. Always stack and handle I-joists in the upright position only.
4. Do not store I-joists in direct contact with the ground and/or flatwise.
5. Protect I-joists from weather, and use spacers to separate bundles.
6. Bundled units should be kept intact until time of installation.
7. When handling I-joists with a crane on the job site, take a few simple precautions to prevent damage to the I-joists and injury to your work crew.
 - Pick I-joists in bundles as shipped by the supplier.
 - Orient the bundles so that the webs of the I-joists are vertical.
 - Pick the bundles at the 5th points, using a spreader bar if necessary.
8. Do not handle I-joists in a horizontal orientation.
9. NEVER USE OR TRY TO REPAIR A DAMAGED I-JOIST.



MAXIMUM FLOOR SPANS

1. Maximum clear spans applicable to simple-span or multiple-span residential floor construction with a design live load of 40 psf and dead load of 15 psf. The ultimate limit states are based on the factored loads of 1.50L + 1.25D. The serviceability limit states include the consideration for floor vibration and a live load deflection limit of L/480. For multiple-span applications, the end spans shall be 40% or more of the adjacent span.
2. Spans are based on a composite floor with glued-nailed oriented strand board (OSB) sheathing with a minimum thickness of 5/8 inch for a joist spacing of 19.2 inches or less, or 3/4 inch for joist spacing of 24 inches. Adhesive shall meet the requirements given in CGOS-71.26 Standard. No concrete topping or bridging element was assumed. Increased spans may be achieved with the use of gypsum and/or a row of blocking at mid-span.
3. Minimum bearing length shall be 1-3/4 inches for the end bearings, and 3-1/2 inches for the intermediate bearings.
4. Bearing stiffeners are not required when I-joists are used with the spans and spacings given in this table, except as required for hangers.
5. This span chart is based on uniform loads. For applications with other than uniform loads, an engineering analysis may be required based on the use of the design properties.
6. Tables are based on Limit States Design per CAN/CSA C08-09 Standard, and NBC 2010.
7. SI units conversion: 1 inch = 25.4 mm
1 foot = 0.305 m

MAXIMUM FLOOR SPANS FOR NORDIC I-JOISTS

Joist Depth	Joist Series	Simple spans				Multiple spans			
		On centre spacing				On centre spacing			
		12"	15"	18"	24"	12"	15"	18"	24"
2-1/2"	NI-20	15'1"	15'2"	13'9"	13'4"	14'5"	15'1"	13'0"	12'4"
	NI-20S	16'1"	15'2"	14'8"	14'0"	17'2"	16'5"	15'10"	15'2"
	NI-20L	16'3"	15'4"	14'10"	14'11"	17'7"	16'7"	16'0"	16'1"
	NI-20T	17'1"	16'1"	15'6"	15'7"	18'7"	17'4"	16'9"	16'10"
3-1/2"	NI-30	17'3"	16'3"	15'8"	15'9"	18'8"	17'6"	16'11"	17'0"
	NI-30S	18'1"	17'0"	16'5"	16'6"	19'4"	17'3"	16'8"	16'7"
	NI-30L	18'4"	17'3"	16'7"	16'9"	20'3"	18'9"	18'0"	18'1"
	NI-30T	19'0"	18'0"	17'4"	17'5"	21'4"	19'11"	19'0"	19'1"
4-1/2"	NI-40	19'9"	18'3"	17'4"	17'7"	21'9"	20'2"	19'3"	19'4"
	NI-40S	20'2"	18'7"	17'10"	17'11"	22'3"	20'7"	19'8"	19'9"
	NI-40L	20'4"	18'9"	17'11"	18'0"	22'5"	20'9"	19'10"	19'11"
	NI-40T	20'1"	18'7"	17'10"	17'11"	22'2"	20'6"	19'8"	19'4"
6-1/2"	NI-60	20'5"	18'11"	18'1"	18'2"	22'7"	20'11"	20'0"	20'1"
	NI-60S	21'9"	20'0"	19'1"	19'2"	23'10"	22'1"	21'1"	21'2"
	NI-60L	21'11"	20'3"	19'4"	19'3"	24'3"	22'5"	21'5"	21'6"
	NI-60T	22'5"	20'8"	19'9"	19'10"	24'9"	22'10"	21'10"	21'10"
8-1/2"	NI-80	22'7"	20'11"	19'11"	20'0"	25'0"	23'1"	22'0"	22'2"
	NI-80S	22'3"	20'8"	19'9"	19'10"	24'7"	22'9"	21'9"	21'10"
	NI-80L	23'4"	21'2"	20'9"	20'10"	26'0"	24'0"	22'11"	23'0"
	NI-80T	23'11"	22'1"	21'1"	21'2"	26'5"	24'5"	23'3"	23'4"
10-1/2"	NI-100	22'4"	21'5"	21'6"	21'6"	26'11"	24'10"	23'9"	23'9"
	NI-100L	24'8"	22'9"	21'9"	21'10"	27'3"	25'2"	24'0"	24'1"

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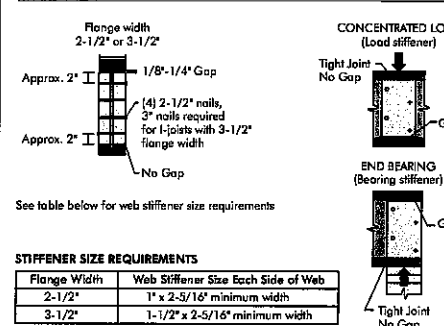
WEB STIFFENERS

RECOMMENDATIONS:

- A bearing stiffener is required in all engineered applications with factored reactions greater than shown in the I-joist properties table found in the I-joist Construction Guide (C101). The gap between the stiffener and the flange is at the top.
- A bearing stiffener is required when the I-joist is supported in a hanger and the sides of the hanger do not extend up to, and support, the top flange. The gap between the stiffener and flange is at the top.
- A load stiffener is required at locations where a factored concentrated load greater than 2,370 lbs is applied to the top flange between supports, or in the case of a cantilever, anywhere between the cantilever tip and the support. These values are for standard term load duration, and may be adjusted for other load durations as permitted by the code. The gap between the stiffener and the flange is at the bottom.

SI units conversion: 1 inch = 25.4 mm

FIGURE 2
WEB STIFFENER INSTALLATION DETAILS

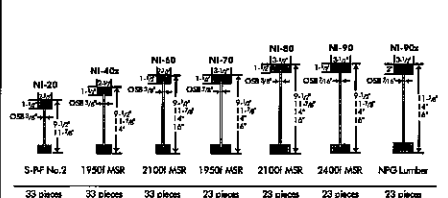


See table below for web stiffener size requirements

STIFFENER SIZE REQUIREMENTS

Flange Width	Web Stiffener Size Each Side of Web
2-1/2"	1" x 2-3/16" minimum width
3-1/2"	1-1/2" x 2-5/16" minimum width

NORDIC I-JOIST SERIES

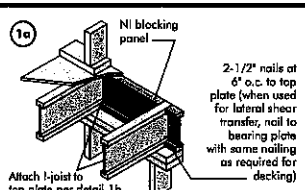


Chantiers Chibougamou Ltd. harvests its own trees, which enables Nordic products to adhere to strict quality control procedures throughout the manufacturing process. Every phase of the operation, from forest to the finished product, reflects our commitment to quality.

Nordic Engineered Wood I-joists use only finger-jointed black and white lumber in their flanges, ensuring consistent quality, superior strength and longer span carrying capacity.

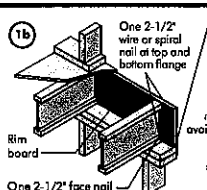
INSTALLING NORDIC I-JOISTS

1. Before laying out floor system components, verify that I-joist flange widths match hanger widths. If not, contact supplier.
2. Except for cutting to length, I-joist flanges should never be cut, drilled, or notched.
3. Install I-joists so that top and bottom flanges are within 1/2 inch of true vertical alignment.
4. I-joists must be anchored securely to supports before floor sheathing is attached, and supports for multiple spans must be level.
5. Minimum bearing lengths: 1-3/4 inches for end bearings and 3-1/2 inches for intermediate bearings.
6. When using hangers, seat I-joists firmly in hanger bottoms to minimize settlement.
7. Leave a 1/16-inch gap between the I-joist end and a header.
8. Concentrated loads greater than those that can normally be expected in residential construction should only be applied to the top surface of the top flange. Normal concentrated loads include track lighting fixtures, audio equipment and security cameras. Never suspend unusual or heavy loads from the I-joist's bottom flange. Whenever possible, suspend all concentrated loads from the top of the I-joist. Or, attach the load to blocking that has been securely fastened to the I-joist webs.
9. Never install I-joists where they will be permanently exposed to weather, or where they will remain in direct contact with concrete or masonry.
10. Restrain ends of floor joists to prevent rollover. Use rim board, rim joists or I-joist blocking panels.
11. For I-joists installed over and beneath bearing walls, use full depth blocking panels, rim board, or squash blocks (ripple members) to transfer gravity loads through the floor system to the wall or foundation below.
12. Due to shrinkage, common framing lumber set on edge may never be used as blocking or rim boards. I-joist blocking panels or other engineered wood products – such as rim board – must be cut to fit between the I-joists, and an I-joist-compatible depth selected.
13. Provide permanent lateral support of the bottom flange of all I-joists at interior supports of multiple-span joists. Similarly, support the bottom flange of all cantilevered I-joists at the end support rest to the cantilever extension. In the completed structure, the gypsum wallboard ceiling provides this lateral support. Until the final finished ceiling is applied, temporary bracing or struts must be used.
14. If square-edge panels are used, edges must be supported between I-joists with 2x4 blocking. Glue panels to blocking to minimize squeaks. Blocking is not required under structural finish flooring, such as wood strip flooring, or if a separate underlayment layer is installed.
15. Nail spacing: Space nails installed to the flange's top face in accordance with the applicable building code requirements or approved building plans.



Blocking Panel or Rim Joist	Maximum Factored Uniform Vertical Load* (plf)
NI Joist	3,300

*The uniform vertical load is limited to a joist depth of 16 inches or less and is based on standard term load duration. It shall not be used in the design of a bending member, such as joist, header, or rafter. For concentrated vertical load transfer, see detail 1d.

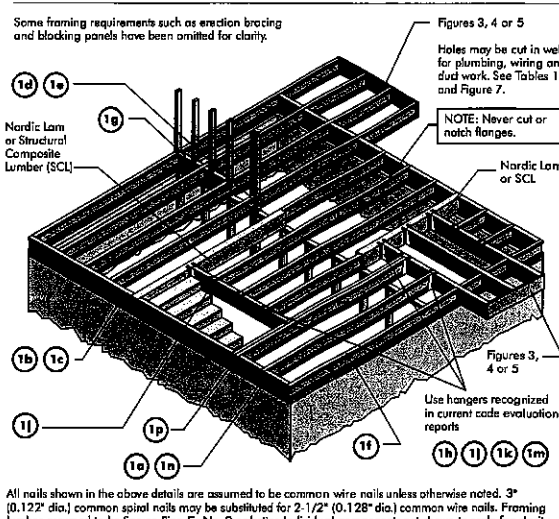


Blocking Panel or Rim Joist	Maximum Factored Uniform Vertical Load* (plf)
1-1/8" Rim Board Plus	8,090

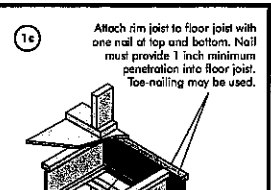
*The uniform vertical load is limited to a rim board depth of 16 inches or less and is based on standard term load duration. It shall not be used in the design of a bending member, such as joist, header, or rafter. For concentrated vertical load transfer, see detail 1d.



FIGURE 1
TYPICAL NORDIC I-JOIST FLOOR FRAMING AND CONSTRUCTION DETAILS

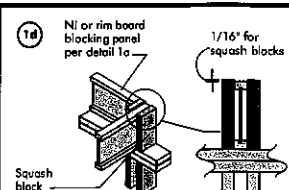


All nails shown in the above details are assumed to be common wire nails unless otherwise noted. 3" (0.122" dia.) common spiral nails may be substituted for 2-1/2" (0.128" dia.) common wire nails. Framing lumber assumed to be Spruce-Pine-Fir No. 2 or better. Individual components not shown to scale for clarity.



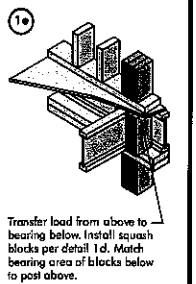
Pair of Squash Blocks	Maximum Factored Vertical per Pair of Squash Blocks (lbs)
3-1/2" wide	5,500
5-1/2" wide	8,500

1-1/8" Rim Board Plus
4,900
6,600

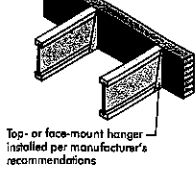


Pair of Squash Blocks	Maximum Factored Vertical per Pair of Squash Blocks (lbs)
2x Lumber	5,500
1-1/8" Rim Board Plus	4,900

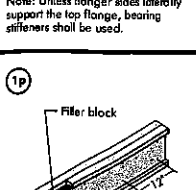
Provide lateral bracing per detail 1a, 1b, or 1c



Transfer load from above to bearing below. Install squash blocks per detail 1d. Match bearing area of blocks below to post above.

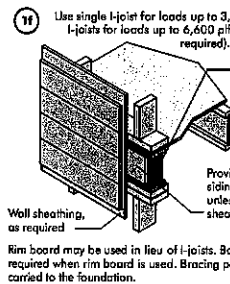


Wall sheathing, as required. Rim board may be used in lieu of I-joists. Backer is not required when rim board is used. Bracing per code shall be carried to the foundation.

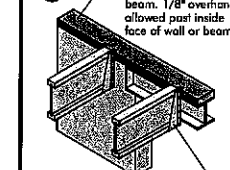


Top- or face-mount hanger installed per manufacturer's recommendations. For nailing schedules for multiple beams, see the manufacturer's recommendations.

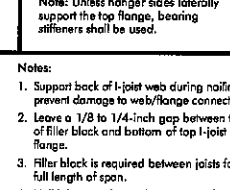
Note: Unless hanger sides laterally support the top flange, bearing stiffeners shall be used.



Top-mount hanger installed per manufacturer's recommendations. Provide backer for sliding attachment unless nailable sheathing is used.

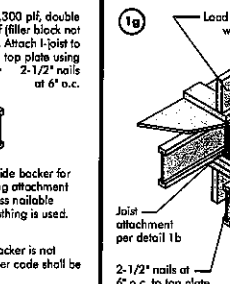


Top-mount hanger installed per manufacturer's recommendations. Backer block attached per detail 1h. Nail with twelve 3" nails, clinch when possible.

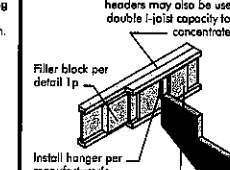


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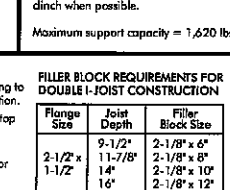
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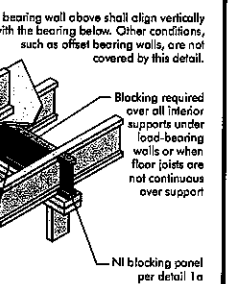


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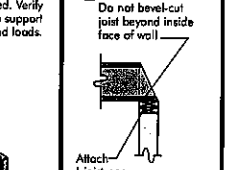


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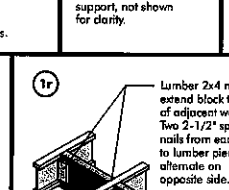
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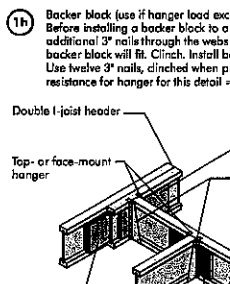


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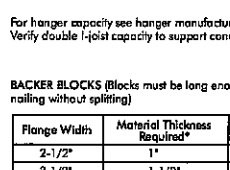


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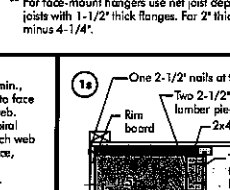
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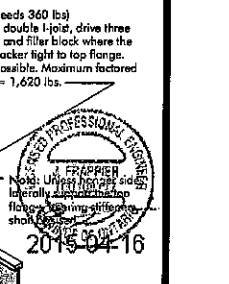


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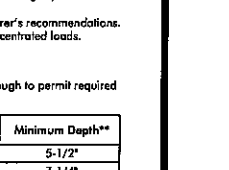


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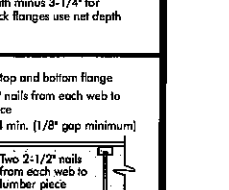
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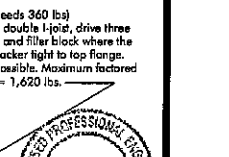


Top-mount hanger installed per manufacturer's recommendations. Backer block attached per detail 1h. Nail with twelve 3" nails, clinch when possible.

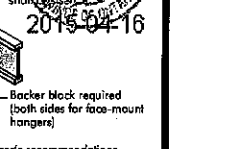


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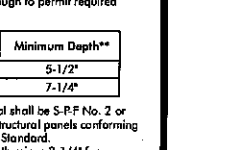
Note: Unless hanger sides laterally support the top flange, bearing stiffeners shall be used.



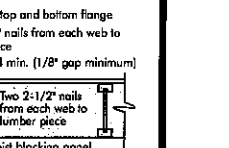
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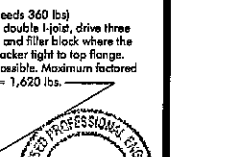


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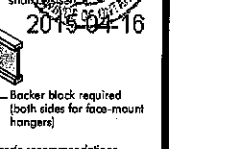


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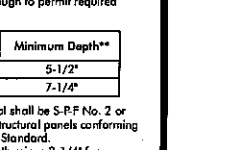
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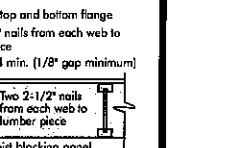
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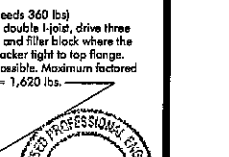


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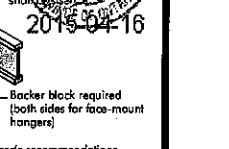


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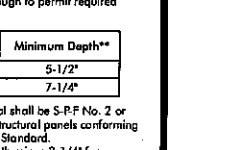
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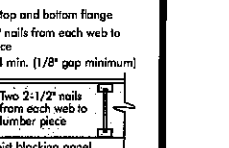
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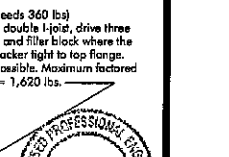


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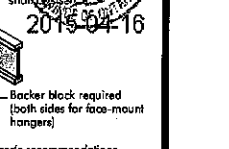


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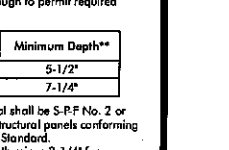
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Top-mount hanger installed per manufacturer's recommendations. Backer block attached per detail 1h. Nail with twelve 3" nails, clinch when possible.



Top-mount hanger installed per manufacturer's recommendations. Backer block attached per detail 1h. Nail with twelve 3" nails, clinch when possible.





Refer to the Installation Guide for Residential Floors for additional information.
CCMC EVALUATION REPORT 13032-R

WEB HOLE SPECIFICATIONS

RULES FOR CUTTING HOLES AND DUCT CHASE OPENINGS:

- The distance between the inside edge of the support and the centreline of any hole or duct chase opening shall be in compliance with the requirements of Table 1 or 2, respectively.
- I-joint top and bottom flanges must NEVER be cut, notched, or otherwise modified.
- Whenever possible, field-cut holes should be centred on the middle of the web.
- The maximum size hole or the maximum depth of a duct chase opening that can be cut into an I-joint web shall equal the clear distance between the flanges of the I-joint minus 1/4 inch. A minimum of 1/8 inch should always be maintained between the top or bottom of the hole or opening and the adjacent I-joint flange.

- The sides of square holes or longest sides of rectangular holes should not exceed 3/4 of the diameter of the maximum round hole permitted at that location.
- Where more than one hole is necessary, the distance between adjacent hole edges shall exceed twice the diameter of the largest round hole or twice the size of the largest square hole (or twice the length of the longest side of the largest rectangular hole or duct chase opening) and each hole and duct chase opening shall be sized and located in compliance with the requirements of Tables 1 and 2, respectively.
- A knockout is not considered a hole, may be utilized anywhere it occurs, and may be ignored for purposes of calculating minimum distances between holes and/or duct chase openings.
- Holes measuring 1-1/2 inches or smaller are permitted anywhere in a cantilevered section of a joist. Holes of greater size may be permitted subject to verification.

- A 1-1/2 inch hole or smaller can be placed anywhere in the web provided that it meets the requirements of rule number 6 above.
- All holes and duct chase openings shall be cut in a workman-like manner in accordance with the restrictions listed above and as illustrated in Figure 7.
- Limit three maximum size holes per span, of which one may be a duct chase opening.
- A group of round holes at approximately the same location shall be permitted if they meet the requirements for a single round hole circumscribed around them.

TABLE 1
LOCATION OF CIRCULAR HOLES IN JOIST WEBS
Simple or Multiple Span for Dead Loads up to 15 psf and Live Loads up to 40 psf

Joist Depth	Joist Series	Minimum Distance from Inside Face of Any Support to Centre of Hole (ft - in.)											
		Round Hole Diameter (in.)											
		2	3	4	5	6	6-1/4	7	8	8-5/8	9	10	10-3/4
9-1/2"	NI-20	0'-7"	1'-6"	2'-10"	4'-3"	5'-8"	6'-0"	---	---	---	---	---	---
	NI-40x	0'-7"	1'-6"	3'-0"	4'-4"	6'-0"	6'-4"	---	---	---	---	---	---
	NI-60	1'-3"	2'-6"	4'-0"	4'-4"	7'-0"	7'-5"	---	---	---	---	---	---
	NI-70	2'-0"	3'-4"	4'-0"	6'-3"	8'-0"	8'-4"	---	---	---	---	---	---
	NI-80	2'-3"	3'-6"	5'-0"	6'-6"	8'-2"	8'-8"	---	---	---	---	---	---
11-7/8"	NI-20	0'-7"	0'-8"	1'-0"	2'-4"	3'-8"	4'-0"	5'-0"	6'-6"	7'-9"	---	---	---
	NI-40x	0'-7"	0'-8"	1'-3"	2'-8"	4'-0"	4'-4"	5'-5"	7'-0"	8'-4"	---	---	---
	NI-60	0'-7"	1'-8"	3'-0"	4'-3"	5'-9"	6'-0"	7'-3"	8'-10"	10'-0"	---	---	---
	NI-70	1'-3"	2'-6"	4'-0"	5'-4"	6'-9"	7'-2"	8'-4"	10'-0"	11'-2"	---	---	---
	NI-80	1'-6"	2'-10"	4'-2"	5'-6"	7'-0"	7'-5"	8'-6"	10'-3"	11'-4"	---	---	---
14"	NI-90	0'-7"	0'-8"	1'-5"	3'-2"	4'-10"	5'-4"	6'-9"	8'-9"	10'-2"	---	---	---
	NI-90x	0'-7"	0'-8"	0'-9"	2'-5"	4'-4"	4'-9"	6'-3"	---	---	---	---	---
	NI-40x	0'-7"	0'-8"	1'-0"	2'-4"	2'-9"	3'-9"	5'-2"	6'-0"	6'-6"	8'-3"	10'-2"	---
	NI-60	0'-7"	0'-8"	1'-8"	3'-0"	4'-3"	4'-8"	5'-8"	7'-2"	8'-0"	8'-8"	10'-4"	11'-9"
	NI-70	0'-8"	1'-10"	3'-0"	4'-5"	5'-10"	6'-2"	7'-3"	8'-9"	9'-9"	10'-4"	12'-0"	13'-5"
16"	NI-80	0'-10"	2'-0"	3'-4"	4'-9"	6'-2"	6'-5"	7'-6"	9'-0"	10'-0"	10'-8"	12'-4"	13'-9"
	NI-90	0'-7"	0'-8"	0'-10"	2'-5"	4'-0"	4'-5"	5'-9"	7'-5"	8'-8"	9'-4"	11'-4"	12'-11"
	NI-90x	0'-7"	0'-8"	0'-8"	2'-0"	3'-9"	4'-2"	5'-5"	7'-3"	8'-5"	9'-2"	---	---
	NI-60	0'-7"	0'-8"	0'-8"	1'-6"	2'-10"	3'-2"	4'-2"	5'-6"	6'-4"	7'-0"	8'-5"	9'-8"
	NI-70	0'-7"	1'-0"	2'-3"	3'-6"	4'-10"	5'-3"	6'-3"	7'-8"	8'-6"	9'-2"	10'-8"	12'-4"
18"	NI-80	0'-7"	1'-3"	2'-6"	3'-10"	5'-3"	5'-6"	6'-6"	8'-0"	9'-0"	9'-5"	11'-0"	12'-3"
	NI-90	0'-7"	0'-8"	0'-8"	1'-9"	3'-3"	3'-8"	4'-9"	6'-5"	7'-5"	8'-1"	11'-3"	13'-4"
	NI-90x	0'-7"	0'-8"	0'-9"	2'-0"	3'-6"	4'-0"	5'-0"	6'-9"	7'-9"	8'-4"	10'-2"	---
	NI-60	0'-7"	0'-8"	0'-8"	1'-6"	2'-10"	3'-2"	4'-2"	5'-6"	6'-4"	7'-0"	8'-5"	9'-8"
	NI-70	0'-7"	1'-0"	2'-3"	3'-6"	4'-10"	5'-3"	6'-3"	7'-8"	8'-6"	9'-2"	10'-8"	12'-4"

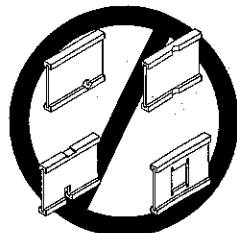
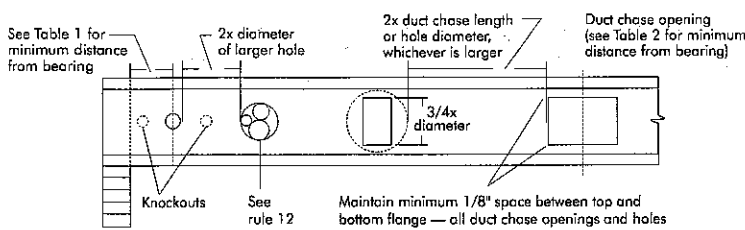
- Above table may be used for I-joint spacing of 24 inches on centre or less.
- Hole location distance is measured from inside face of supports to centre of hole.
- Distances in this chart are based on uniformly loaded joists.
- The above table is based on the I-joists being used at their maximum spans. The minimum distance as given above may be reduced for shorter spans; contact your local distributor.

TABLE 2
DUCT CHASE OPENING SIZES AND LOCATIONS
Simple Span Only

Joist Depth	Joist Series	Minimum distance from inside face of supports to centre of opening (ft - in.)											
		Duct Chase Length (in.)											
		8	10	12	14	16	18	20	22	24			
9-1/2"	NI-20	4'-1"	4'-5"	4'-10"	5'-4"	5'-8"	6'-1"	6'-6"	7'-1"	7'-5"	---	---	---
	NI-40x	5'-3"	5'-8"	6'-0"	6'-5"	6'-10"	7'-3"	7'-8"	8'-2"	8'-6"	---	---	---
	NI-60	5'-4"	5'-9"	6'-2"	6'-7"	7'-1"	7'-5"	8'-0"	8'-3"	8'-9"	---	---	---
	NI-70	5'-1"	5'-5"	5'-10"	6'-3"	6'-7"	7'-1"	7'-6"	8'-1"	8'-4"	---	---	---
	NI-80	5'-3"	5'-8"	6'-0"	6'-5"	6'-10"	7'-3"	7'-8"	8'-2"	8'-6"	---	---	---
11-7/8"	NI-20	5'-9"	6'-2"	6'-6"	7'-1"	7'-5"	7'-9"	8'-3"	8'-9"	9'-4"	---	---	---
	NI-40x	6'-5"	7'-2"	7'-6"	8'-1"	8'-6"	9'-1"	9'-6"	10'-1"	10'-9"	---	---	---
	NI-60	7'-3"	7'-8"	8'-0"	8'-6"	9'-0"	9'-3"	9'-9"	10'-3"	11'-0"	---	---	---
	NI-70	7'-1"	7'-4"	7'-9"	8'-3"	8'-7"	9'-1"	9'-6"	10'-1"	10'-4"	---	---	---
	NI-80	7'-2"	7'-7"	8'-0"	8'-5"	8'-10"	9'-3"	9'-8"	10'-2"	10'-6"	---	---	---
14"	NI-90	7'-6"	7'-11"	8'-4"	8'-9"	9'-2"	9'-7"	10'-1"	10'-7"	10'-11"	---	---	---
	NI-90x	7'-7"	8'-1"	8'-5"	8'-10"	9'-4"	9'-8"	10'-2"	10'-8"	11'-2"	---	---	---
	NI-40x	8'-1"	8'-7"	9'-0"	9'-6"	10'-1"	10'-7"	11'-2"	12'-0"	12'-8"	---	---	---
	NI-60	8'-9"	9'-3"	9'-8"	10'-1"	10'-6"	11'-1"	11'-6"	13'-3"	13'-0"	---	---	---
	NI-70	8'-7"	9'-1"	9'-5"	9'-10"	10'-4"	10'-8"	11'-2"	11'-7"	12'-3"	---	---	---
16"	NI-80	9'-0"	9'-3"	9'-9"	10'-1"	10'-7"	11'-1"	11'-6"	12'-1"	12'-6"	---	---	---
	NI-90	9'-2"	9'-8"	10'-0"	10'-6"	10'-11"	11'-5"	11'-9"	12'-4"	12'-11"	---	---	---
	NI-90x	9'-4"	9'-9"	10'-3"	10'-7"	11'-1"	11'-7"	12'-1"	12'-7"	13'-2"	---	---	---
	NI-60	10'-3"	10'-8"	11'-2"	11'-6"	12'-1"	12'-6"	13'-2"	14'-1"	14'-10"	---	---	---
	NI-70	10'-1"	10'-5"	11'-0"	11'-4"	11'-10"	12'-3"	12'-8"	13'-3"	14'-0"	---	---	---
18"	NI-80	10'-4"	10'-9"	11'-3"	11'-9"	12'-1"	12'-7"	13'-1"	13'-8"	14'-4"	---	---	---
	NI-90	10'-9"	11'-2"	11'-8"	12'-0"	12'-6"	13'-0"	13'-6"	14'-2"	14'-10"	---	---	---
	NI-90x	11'-1"	11'-5"	11'-10"	12'-4"	12'-10"	13'-2"	13'-9"	14'-4"	15'-2"	---	---	---

- Above table may be used for I-joint spacing of 24 inches on centre or less.
- Duct chase opening location distance is measured from inside face of supports to centre of opening.
- The above table is based on simple-span joists only. For other applications, contact your local distributor.
- Distances are based on uniformly loaded floor joists that meet the span requirements for a design live load of 40 psf and dead load of 15 psf, and a live load deflection limit of L/480.
- The above table is based on the I-joists being used at their maximum spans. The minimum distance as given above may be reduced for shorter spans; contact your local distributor.

FIGURE 7
FIELD-CUT HOLE LOCATOR



Knockouts are prescored holes provided for the contractor's convenience to install electrical or small plumbing lines. They are 1-1/2 inches in diameter, and are spaced 15 inches on centre along the length of the I-joint. Where possible, it is preferable to use knockouts instead of field-cut holes.

Never drill, cut or notch the flange, or over-cut the web.

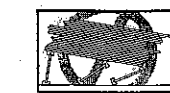
Holes in webs should be cut with a sharp saw.

For rectangular holes, avoid over-cutting the corners, as this can cause unnecessary stress concentrations. Slightly rounding the corners is recommended. Starting the rectangular hole by drilling a 1-inch diameter hole in each of the four corners and then making the cuts between the holes is another good method to minimize damage to the I-joint.

SAFETY AND CONSTRUCTION PRECAUTIONS



Do not walk on I-joists until fully fastened and braced, or serious injuries can result.



Never stack building materials over unbraced I-joists. Once sheathed, do not over-stress I-joists with concentrated loads from building materials.

WARNING: I-joists are not stable until completely installed, and will not carry any load until fully braced and sheathed.

AVOID ACCIDENTS BY FOLLOWING THESE IMPORTANT GUIDELINES:

- Brace and nail each I-joint as it is installed, using hangers, blocking panels, rim board, and/or cross-bridging at joist ends. When I-joists are applied continuous over interior supports and a load-bearing wall is planned at that location, blocking will be required at the interior support.
- When the building is completed, the floor sheathing will provide lateral support for the top flanges of the I-joists. Until this sheathing is applied, temporary bracing, often called struts, or temporary sheathing must be applied to prevent I-joint rollover or buckling.
 - Temporary bracing or struts must be 1x4 inch minimum, at least 8 feet long and spaced no more than 8 feet on centre, and must be secured with a minimum of two 2-1/2" nails fastened to the top surface of each I-joint. Nail the bracing to a lateral restraint at the end of each bay. Lap ends of adjoining bracing over at least two I-joists.
 - Or, sheathing (temporary or permanent) can be nailed to the top flange of the first 4 feet of I-joists at the end of the bay.
- For cantilevered I-joists, brace top and bottom flanges, and brace ends with closure panels, rim board, or cross-bridging.
- Install and fully nail permanent sheathing to each I-joint before placing loads on the floor system. Then, stack building materials over beams or walls only.
- Never install a damaged I-joint.

Improper storage or installation, failure to follow applicable building codes, failure to follow span ratings for Nordic I-joists, failure to follow allowable hole sizes and locations, or failure to use web stiffeners when required can result in serious accidents. Follow these installation guidelines carefully.

PRODUCT WARRANTY

Chantiers Chibougamau guarantees that, in accordance with our specifications, Nordic products are free from manufacturing defects in material and workmanship.

Furthermore, Chantiers Chibougamau warrants that our products, when utilized in accordance with our handling and installation instructions, will meet or exceed our specifications for the lifetime of the structure.

Blocking Panel or Rim Joist	Maximum Factored Vertical Load* (plf)
NI Joists	3,300

*The uniform vertical load is limited to a joist depth of 16 inches or less and is based on standard term load duration. It shall not be used in the design of a bending member, such as joist, header, or rafter. For concentrated vertical load transfer, see detail 1d.

Attach I-joint to top plate per detail 1b

2-1/2" nails at 6" o.c. to top plate (when used for lateral shear transfer, nail to bearing plate with some nailing as required for decking)

Blocking Panel or Rim Joist	Maximum Factored Vertical Load* (plf)
1-1/8" Rim Board Plus	8,090

*The uniform vertical load is limited to a rim board depth of 16 inches or less and is based on standard term load duration. It shall not be used in the design of a bending member, such as joist, header, or rafter. For concentrated vertical load transfer, see detail 1d.

One 2-1/2" face nail at each side at bearing

Attach rim board to top plate using 2-1/2" wire or spiral toe-nails at 6" o.c.

To avoid splitting flange, start nails at least 1-1/2" from end of I-joint. Nails may be driven at an angle to avoid splitting of bearing plate.

Minimum bearing length shall be 1-3/4" for the end bearings, and 3-1/2" for the intermediate bearings when applicable.

Pair of Squash Blocks	Maximum Factored Vertical Load per Pair of Squash Blocks (lbs)
2x Lumber	3-1/2" wide: 5,500 5-1/2" wide: 8,500
1-1/8" Rim Board Plus	4,300, 6,600

Provide lateral bracing per detail 1a or 1b

Transfer load from above to bearing below. Install squash blocks per detail 1d. Match bearing area of blocks below to post above.

Joist attachment per detail 1b. Load bearing wall above shall align vertically with the bearing below. Other conditions, such as offset bearing walls, are not covered by this detail. Blocking required over all interior supports under load-bearing walls or when floor joists are not continuous over support. 2-1/2" nails at 6" o.c. to top plate. NI blocking panel per detail 1a.

Backer block (use if hanger load exceeds 360 lbs). Before installing a backer block to a double I-joint, drive three additional 3" nails through the webs and filler block where the backer block will fit. Clinch. Install backer tight to top flange. Use twelve 3" nails, clinched when possible. Maximum factored resistance for hanger for this detail = 1,620 lbs.

Flange Width	Material Thickness Required*	Minimum Depth**
2-1/2"	1"	5-1/2"
3-1/2"	1-1/2"	7-1/4"

* Minimum grade for backer block material shall be S-P-F No. 2 or better for solid sawn lumber and wood structural panels conforming to CAN/CSA-O325 or CAN/CSA-O437 Standard.
** For face-mount hangers use net joist depth minus 3-1/4" for joists with 1-1/2" thick flanges. For 2" thick flanges use net depth minus 4-1/4".

Top- or face-mount hanger. Double I-joint header. NOTE: Unless hanger sides laterally support the top flange, bearing stiffeners shall be used. Backer block required (both sides for face-mount hangers). For hanger capacity see hanger manufacturer's recommendations. Verify double I-joint capacity to support concentrated loads.

Nordic Lam or Structural Composite Lumber (SCL). For nailing schedules for multiple beams, see the manufacturer's recommendations. Top- or face-mount hanger installed per manufacturer's recommendations. NOTE: Unless hanger sides laterally support the top flange, bearing stiffeners shall be used.

2x plate flush with inside face of wall or beam. 1/8" overhang allowed past inside face of wall or beam.

Multiple I-joint header with full depth filler block shown. Nordic Lam or SCL headers may also be used. Verify double I-joint capacity to support concentrated loads. Backer block attached per detail 1h. Nail with twelve 3" nails, clinch when possible. Top-mount hanger installed per manufacturer's recommendations. Filler block per detail 1p. Maximum support capacity = 1,620 lbs.

Do not bevel-cut joist bearing inside face of wall. Attach I-joint per detail 1b.

Lumber 2x4 min., extend block to face of adjacent web. Two 2-1/2" spiral nails from each web to lumber piece, alternate on opposite side. NI blocking panel. OPTIONAL: Minimum 1x4 inch strap applied to underside of joist at blocking line or 1/2 inch minimum gypsum ceiling attached to underside of joists.

FILLER BLOCK REQUIREMENTS FOR DOUBLE I-JOINT CONSTRUCTION. Offset nails from opposite face by 6". 1/8" to 1/4" gap between top flange and filler block.

NOTES:

- Support back of I-joint web during nailing to prevent damage to web/flange connection.
- Leave a 1/8 to 1/4-inch gap between top of filler block and bottom of top I-joint flange.
- Filler block is required between joists for full length of span.
- Nail joists together with two rows of 3" nails at 12 inches o.c. (clinched when possible) on each side of the double I-joint. Total of four nails per foot required. If nails can be clinched, only two nails per foot are required.
- The maximum factored load that may be applied to one side of the double joist using this detail is 860 lb/ft. Verify double I-joint capacity.

Flange Size	Net Depth	Filler Block Size
2-1/2" x 1-1/2"	9-1/2" 11-7/8" 14"	2-1/8" x 6" 2-1/8" x 8" 2-1/8" x 10" 2-1/8" x 12"
3-1/2" x 1-1/2"	9-1/2" 11-7/8" 14"	3" x 6" 3" x 8" 3" x 10" 3" x 12"
3-1/2" x 2"	11-7/8" 14" 16"	3" x 7" 3" x 9" 3" x 11"

One 2-1/2" nail at top and bottom flange. 2x4 min. (1/8" gap minimum). Two 2-1/2" nails from each web to lumber piece. I-joint blocking panel. One 2-1/2" nail one side only.

NOTES:

- In

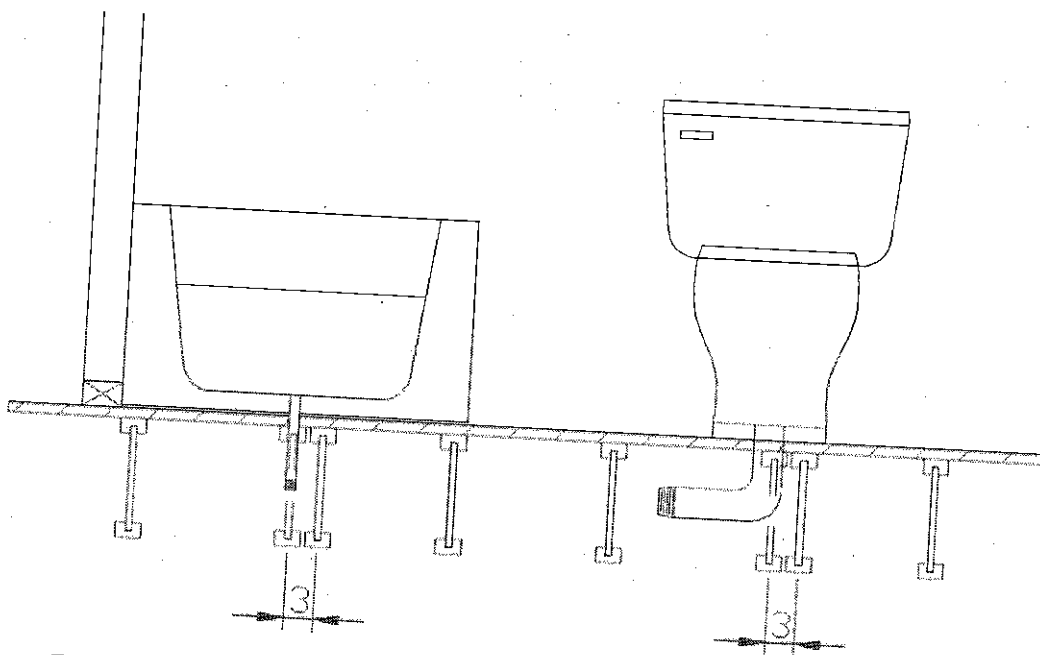
Allowance for Piping (Installation Notes)

The floor layouts have usually not been checked for heating and/or plumbing interference. On-site adjustment of joists of up to 3 inches is permitted to avoid interferences. When moving a joist, the subfloor thickness shall be checked with code requirements when the joist spacing exceeds 19.2 inches. Except for cutting to length, I-joist flanges should never be cut, drilled, or notched.

Installation of Nordic I-joists shall be as per *Nordic Joist Installation Guide for Residential Floors*. Refer to Tables 1 and 2 for maximum web hole and duct chase openings, respectively. These tables are based on the I-joists being used at their maximum spans. The minimum distance given may be reduced for shorter spans; contact your distributor for additional information.

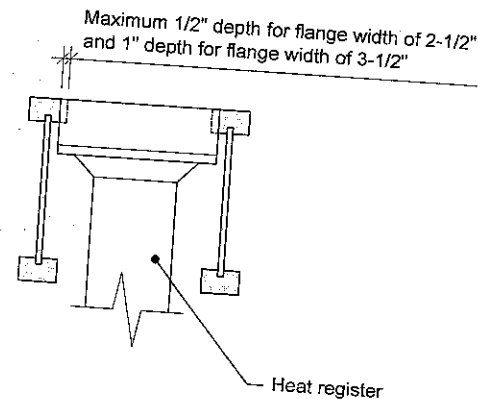
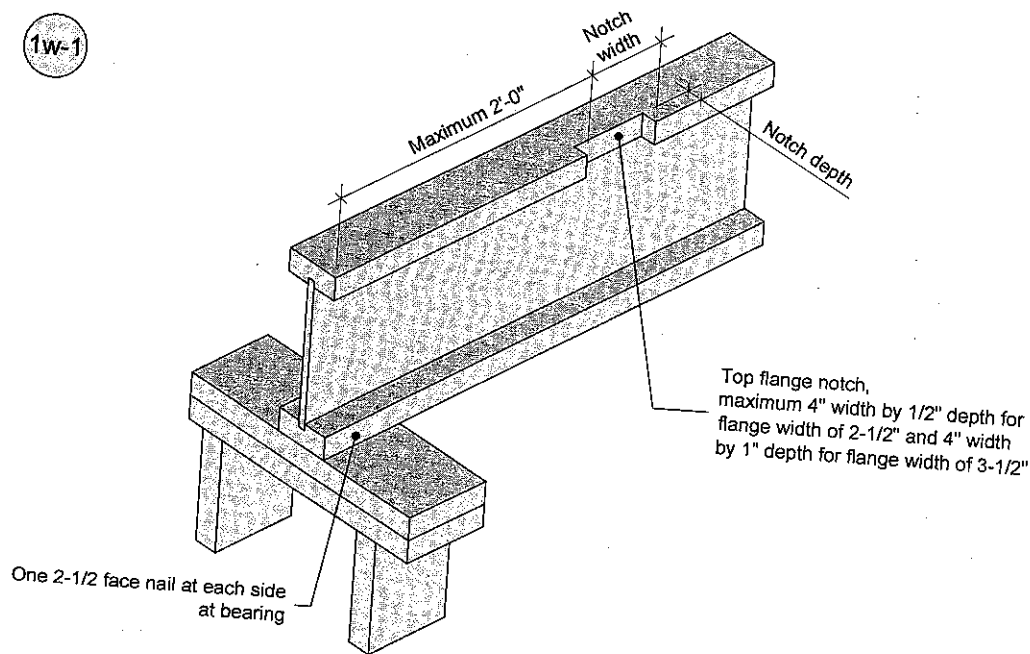
The detail below shows the 3-inch allowance for piping. Every third joist may be shifted up to 3 inches to avoid heating/plumbing interference. For other applications, please contact your distributor.

ALLOWANCE FOR PIPING



Every third joist may be shifted up to 3 inches to avoid heating/plumbing interference.

1W-1



Notes:

1. Blocking required at bearing for lateral support, not shown for clarity.
2. The maximum dimensions for a notch on the side of the top flange are 4-inch width by 1/2-inch depth for flange width of 2-1/2 inches, and 4-inch width by 1-inch depth for flange width of 3-1/2 inches.
3. This detail applies to simple-span joists and multiple-span joists where the notch is located at the end half-span.
4. For other applications, contact Nordic Structures.

This document supersedes all previous versions. If the document has been in effect for more than one year, consult nordic.ca or contact Nordic Structures.

All nails shown in the details are assumed to be common nails unless otherwise noted. Nails shall have a diameter not less than 0.128 inch for 2-1/2-inch nails, or 0.144 inch for 3-inch nails. Individual components not shown to scale for clarity.

**NORDIC
STRUCTURES**

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TITLE

Notch in I-joist for Heat Register

CATEGORY

I-joist - Typical Floor Framing and Construction Details

DOCUMENT

DATE

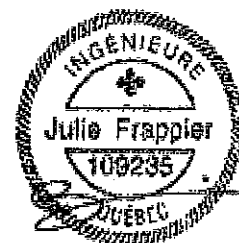
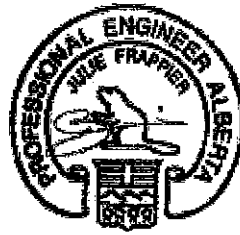
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Maximum Floor Spans

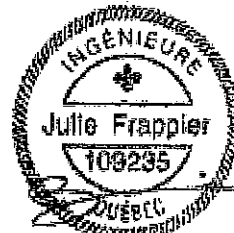
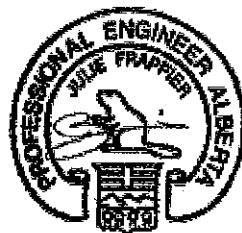
Live Load = 40 psf, Dead Load = 30 psf
Simple Spans, L/480 Deflection Limit
3/4" OSB G&N Sheathing



Depth	Series	Bare				1/2" Gypsum Ceiling			
		On Centre Spacing				On Centre Spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	15'-7"	14'-2"	13'-4"	12'-4"	15'-7"	14'-2"	13'-4"	12'-4"
	NI-40x	17'-0"	16'-0"	15'-1"	13'-11"	17'-5"	16'-1"	15'-1"	13'-11"
	NI-60	17'-2"	16'-2"	15'-5"	14'-3"	17'-6"	16'-5"	15'-5"	14'-3"
	NI-70	18'-0"	16'-11"	16'-3"	15'-6"	18'-5"	17'-3"	16'-7"	15'-6"
	NI-80	18'-3"	17'-1"	16'-5"	15'-9"	18'-8"	17'-5"	16'-9"	15'-10"
11-7/8"	NI-20	17'-10"	16'-10"	16'-0"	14'-10"	18'-6"	17'-1"	16'-0"	14'-10"
	NI-40x	19'-4"	17'-11"	17'-3"	15'-10"	19'-11"	18'-6"	17'-9"	15'-10"
	NI-60	19'-7"	18'-2"	17'-5"	16'-9"	20'-2"	18'-9"	17'-11"	17'-1"
	NI-70	20'-9"	19'-2"	18'-3"	17'-5"	21'-4"	19'-9"	18'-10"	17'-10"
	NI-80	21'-1"	19'-5"	18'-6"	17'-7"	21'-7"	20'-0"	19'-0"	18'-0"
	NI-90x	21'-8"	20'-0"	19'-1"	18'-0"	22'-2"	20'-6"	19'-6"	18'-6"
14"	NI-40x	21'-5"	19'-10"	18'-11"	17'-5"	22'-1"	20'-6"	19'-6"	17'-5"
	NI-60	21'-10"	20'-2"	19'-3"	18'-2"	22'-5"	20'-10"	19'-11"	18'-10"
	NI-70	23'-0"	21'-3"	20'-3"	19'-2"	23'-8"	21'-11"	20'-10"	19'-9"
	NI-80	23'-5"	21'-7"	20'-7"	19'-5"	24'-0"	22'-3"	21'-2"	20'-0"
	NI-90x	24'-1"	22'-3"	21'-2"	20'-0"	24'-8"	22'-10"	21'-9"	20'-7"
16"	NI-60	23'-9"	22'-0"	20'-11"	19'-10"	24'-6"	22'-9"	21'-8"	20'-6"
	NI-70	25'-1"	23'-2"	22'-0"	20'-10"	25'-9"	23'-10"	22'-9"	21'-6"
	NI-80	25'-6"	23'-6"	22'-4"	21'-2"	26'-1"	24'-2"	23'-1"	21'-10"
	NI-90x	26'-4"	24'-3"	23'-1"	21'-10"	26'-11"	24'-11"	23'-8"	22'-5"

Depth	Series	Mid-Span Blocking				Mid-Span Blocking and 1/2" Gypsum Ceiling			
		On Centre Spacing				On Centre Spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	15'-7"	14'-2"	13'-4"	12'-4"	15'-7"	14'-2"	13'-4"	12'-4"
	NI-40x	17'-9"	16'-1"	15'-1"	13'-11"	17'-9"	16'-1"	15'-1"	13'-11"
	NI-60	18'-1"	16'-5"	15'-5"	14'-3"	18'-1"	16'-5"	15'-5"	14'-3"
	NI-70	19'-10"	17'-11"	16'-9"	15'-6"	19'-10"	17'-11"	16'-9"	15'-6"
	NI-80	20'-2"	18'-3"	17'-1"	15'-10"	20'-2"	18'-3"	17'-1"	15'-10"
11-7/8"	NI-20	18'-10"	17'-1"	16'-0"	14'-10"	18'-10"	17'-1"	16'-0"	14'-10"
	NI-40x	21'-3"	19'-3"	17'-9"	15'-10"	21'-3"	19'-3"	17'-9"	15'-10"
	NI-60	21'-9"	19'-8"	18'-5"	17'-1"	21'-9"	19'-8"	18'-5"	17'-1"
	NI-70	23'-4"	21'-5"	20'-1"	18'-6"	23'-8"	21'-5"	20'-1"	18'-6"
	NI-80	23'-7"	21'-10"	20'-5"	18'-11"	24'-1"	21'-10"	20'-5"	18'-11"
	NI-90x	24'-3"	22'-6"	21'-3"	19'-7"	24'-8"	22'-7"	21'-3"	19'-7"
14"	NI-40x	24'-2"	21'-5"	19'-6"	17'-5"	24'-2"	21'-5"	19'-6"	17'-5"
	NI-60	24'-9"	22'-5"	21'-0"	19'-6"	24'-9"	22'-5"	21'-0"	19'-6"
	NI-70	26'-1"	24'-3"	22'-9"	21'-0"	26'-8"	24'-3"	22'-9"	21'-0"
	NI-80	26'-6"	24'-7"	23'-3"	21'-6"	27'-1"	24'-10"	23'-3"	21'-6"
	NI-90x	27'-3"	25'-4"	24'-1"	22'-4"	27'-9"	25'-10"	24'-3"	22'-4"
16"	NI-60	27'-3"	24'-11"	23'-5"	21'-7"	27'-6"	24'-11"	23'-5"	21'-7"
	NI-70	28'-8"	26'-8"	25'-3"	23'-4"	29'-3"	26'-11"	25'-3"	23'-4"
	NI-80	29'-1"	27'-0"	25'-9"	23'-10"	29'-8"	27'-6"	25'-10"	23'-10"
	NI-90x	29'-11"	27'-10"	26'-6"	24'-10"	30'-6"	28'-5"	26'-11"	24'-10"

- Maximum clear span applicable to simple-span residential floor construction with a design live load of 40 psf and dead load of 30 psf. The ultimate limit states are based on the factored loads of $1.50L + 1.25D$. The serviceability limit states include the consideration for floor vibration, a live load deflection limit of $L/480$ and a total load deflection limit of $L/240$.
- Spans are based on a composite floor with glued-nailed oriented strand board (OSB) sheathing with a minimum thickness of 3/4 inch for a joist spacing of 24 inches or less. The composite floor may include 1/2 inch gypsum ceiling and/or one row of blocking at mid-span with strapping. Strapping shall be minimum 1x4 inch strap applied to underside of joists at blocking line or 1/2 inch gypsum ceiling attached to joists.
- Minimum bearing length shall be 1-3/4 inches for the end bearings.
- Bearing stiffeners are not required when I-joists are used with the spans and spacings given in this table, except as required for hangers.
- This span chart is based on uniform loads. For applications with other than uniformly distributed loads, an engineering analysis may be required based on the use of the design properties. Tables are based on Limit States Design per CSA O86-09, NBC 2010, and OBC 2012.
- Joists shall be laterally supported at supports and continuously along the compression edge. Refer to technical documentation for installation guidelines and construction details. Nordic I-joists are listed in CCMC evaluation report 13032-R and APA Product Report PR-L274C.



Maximum Floor Spans

Live Load = 40 psf, Dead Load = 15 psf

Simple Spans, L/480 Deflection Limit

5/8" OSB G&N Sheathing

Depth	Series	Bare				1/2" Gypsum Ceiling			
		On Centre Spacing				On Centre Spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	15'-1"	14'-2"	13'-9"	N/A	15'-7"	14'-8"	14'-2"	N/A
	NI-40x	16'-1"	15'-2"	14'-8"	N/A	16'-7"	15'-7"	15'-1"	N/A
	NI-60	16'-3"	15'-4"	14'-10"	N/A	16'-8"	15'-9"	15'-3"	N/A
	NI-70	17'-1"	16'-1"	15'-6"	N/A	17'-5"	16'-5"	15'-10"	N/A
	NI-80	17'-3"	16'-3"	15'-8"	N/A	17'-8"	16'-7"	16'-0"	N/A
11-7/8"	NI-20	16'-11"	16'-0"	15'-5"	N/A	17'-6"	16'-6"	16'-0"	N/A
	NI-40x	18'-1"	17'-0"	16'-5"	N/A	18'-9"	17'-6"	16'-11"	N/A
	NI-60	18'-4"	17'-3"	16'-7"	N/A	19'-0"	17'-8"	17'-1"	N/A
	NI-70	19'-6"	18'-0"	17'-4"	N/A	20'-1"	18'-7"	17'-9"	N/A
	NI-80	19'-9"	18'-3"	17'-6"	N/A	20'-4"	18'-10"	17'-11"	N/A
14"	NI-90x	20'-4"	18'-9"	17'-11"	N/A	20'-10"	19'-3"	18'-5"	N/A
	NI-40x	20'-1"	18'-7"	17'-10"	N/A	20'-10"	19'-4"	18'-6"	N/A
	NI-60	20'-5"	18'-11"	18'-1"	N/A	21'-2"	19'-7"	18'-9"	N/A
	NI-70	21'-7"	20'-0"	19'-1"	N/A	22'-3"	20'-7"	19'-8"	N/A
	NI-80	21'-11"	20'-3"	19'-4"	N/A	22'-7"	20'-11"	20'-0"	N/A
16"	NI-90x	22'-7"	20'-11"	19'-11"	N/A	23'-3"	21'-6"	20'-6"	N/A
	NI-60	22'-3"	20'-8"	19'-9"	N/A	23'-1"	21'-5"	20'-6"	N/A
	NI-70	23'-6"	21'-9"	20'-9"	N/A	24'-3"	22'-5"	21'-5"	N/A
	NI-80	23'-11"	22'-1"	21'-1"	N/A	24'-8"	22'-10"	21'-9"	N/A
	NI-90x	24'-8"	22'-9"	21'-9"	N/A	25'-4"	23'-5"	22'-4"	N/A
Depth	Series	Mid-Span Blocking				Mid-Span Blocking and 1/2" Gypsum Ceiling			
		On Centre Spacing				On Centre Spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	16'-8"	15'-3"	14'-5"	N/A	16'-8"	15'-3"	14'-5"	N/A
	NI-40x	17'-11"	16'-11"	16'-1"	N/A	18'-5"	17'-1"	16'-1"	N/A
	NI-60	18'-2"	17'-1"	16'-4"	N/A	18'-7"	17'-4"	16'-4"	N/A
	NI-70	19'-2"	17'-10"	17'-2"	N/A	19'-7"	18'-3"	17'-7"	N/A
	NI-80	19'-5"	18'-0"	17'-4"	N/A	19'-10"	18'-5"	17'-8"	N/A
11-7/8"	NI-20	19'-6"	18'-1"	17'-3"	N/A	19'-11"	18'-3"	17'-3"	N/A
	NI-40x	21'-0"	19'-6"	18'-8"	N/A	21'-7"	20'-2"	19'-2"	N/A
	NI-60	21'-4"	19'-9"	18'-11"	N/A	21'-11"	20'-4"	19'-6"	N/A
	NI-70	22'-6"	20'-10"	19'-11"	N/A	23'-0"	21'-5"	20'-5"	N/A
	NI-80	22'-9"	21'-1"	20'-1"	N/A	23'-3"	21'-7"	20'-8"	N/A
14"	NI-90x	23'-4"	21'-8"	20'-8"	N/A	23'-10"	22'-2"	21'-2"	N/A
	NI-40x	23'-7"	21'-11"	20'-11"	N/A	24'-3"	22'-7"	21'-7"	N/A
	NI-60	24'-0"	22'-3"	21'-3"	N/A	24'-8"	22'-11"	21'-11"	N/A
	NI-70	25'-3"	23'-4"	22'-3"	N/A	25'-10"	24'-0"	22'-11"	N/A
	NI-80	25'-7"	23'-8"	22'-7"	N/A	26'-2"	24'-4"	23'-2"	N/A
16"	NI-90x	26'-4"	24'-4"	23'-3"	N/A	26'-10"	24'-11"	23'-9"	N/A
	NI-60	26'-5"	24'-6"	23'-4"	N/A	27'-2"	25'-3"	24'-2"	N/A
	NI-70	27'-9"	25'-8"	24'-6"	N/A	28'-5"	26'-5"	25'-2"	N/A
	NI-80	28'-2"	26'-1"	24'-10"	N/A	28'-10"	26'-9"	25'-6"	N/A
	NI-90x	29'-0"	26'-10"	25'-7"	N/A	29'-7"	27'-5"	26'-2"	N/A

1. Maximum clear span applicable to simple-span residential floor construction with a design live load of 40 psf and dead load of 15 psf. The ultimate limit states are based on the factored loads of 1.50L + 1.25D. The serviceability limit states include the consideration for floor vibration, a live load deflection limit of L/480 and a total load deflection limit of L/240.

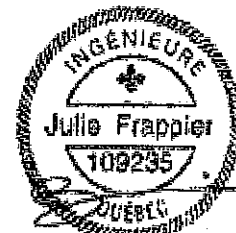
2. Spans are based on a composite floor with glued-nailed oriented strand board (OSB) sheathing with a minimum thickness of 5/8 inch for a joist spacing of 19.2 inches or less. The composite floor may include 1/2 inch gypsum ceiling and/or one row of blocking at mid-span with strapping. Strapping shall be minimum 1x4 inch strap applied to underside of joists at blocking line or 1/2 inch gypsum ceiling attached to joists.

3. Minimum bearing length shall be 1-3/4 inches for the end bearings.

4. Bearing stiffeners are not required when I-joists are used with the spans and spacings given in this table, except as required for hangers.

5. This span chart is based on uniform loads. For applications with other than uniformly distributed loads, an engineering analysis may be required based on the use of the design properties. Tables are based on Limit States Design per CSA O86-09, NBC 2010, and OBC 2012.

6. Joists shall be laterally supported at supports and continuously along the compression edge. Refer to technical documentation for installation guidelines and construction details. Nordic I-joists are listed in CCMC evaluation report 13032-R and APA Product Report PR-L274C.



Maximum Floor Spans

Live Load = 40 psf, Dead Load = 15 psf
Simple Spans, L/480 Deflection Limit
3/4" OSB G&N Sheathing

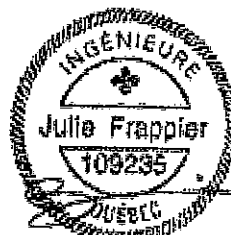
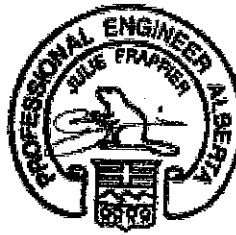
Depth	Series	Bare				1/2" Gypsum Ceiling			
		On Centre Spacing				On Centre Spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	15'-10"	15'-0"	14'-5"	13'-5"	16'-4"	15'-5"	14'-6"	13'-5"
	NI-40x	17'-0"	16'-0"	15'-5"	14'-9"	17'-5"	16'-5"	15'-10"	15'-2"
	NI-60	17'-2"	16'-2"	15'-7"	14'-11"	17'-6"	16'-7"	15'-11"	15'-3"
	NI-70	18'-0"	16'-11"	15'-3"	15'-7"	18'-5"	17'-3"	16'-7"	15'-11"
	NI-80	18'-3"	17'-1"	16'-5"	15'-9"	18'-8"	17'-5"	16'-9"	16'-1"
11-7/8"	NI-20	17'-10"	16'-10"	16'-2"	15'-6"	18'-6"	17'-4"	16'-9"	16'-1"
	NI-40x	19'-4"	17'-11"	17'-3"	16'-6"	19'-11"	18'-6"	17'-9"	17'-0"
	NI-60	19'-7"	18'-2"	17'-5"	16'-9"	20'-2"	18'-9"	17'-11"	17'-2"
	NI-70	20'-9"	19'-2"	18'-3"	17'-5"	21'-4"	19'-9"	18'-10"	17'-10"
	NI-80	21'-1"	19'-5"	18'-6"	17'-7"	21'-7"	20'-0"	19'-0"	18'-0"
14"	NI-90x	21'-8"	20'-0"	19'-1"	18'-0"	22'-2"	20'-6"	19'-6"	18'-6"
	NI-40x	21'-5"	19'-10"	18'-11"	17'-11"	22'-1"	20'-6"	19'-7"	18'-7"
	NI-60	21'-10"	20'-2"	19'-3"	18'-2"	22'-5"	20'-10"	19'-11"	18'-10"
	NI-70	23'-0"	21'-3"	20'-3"	19'-2"	23'-8"	21'-11"	20'-10"	19'-9"
	NI-80	23'-5"	21'-7"	20'-7"	19'-5"	24'-0"	22'-3"	21'-2"	20'-0"
16"	NI-90x	24'-1"	22'-3"	21'-2"	20'-0"	24'-8"	22'-10"	21'-9"	20'-7"
	NI-60	23'-9"	22'-0"	20'-11"	19'-10"	24'-6"	22'-9"	21'-8"	20'-6"
	NI-70	25'-1"	23'-2"	22'-0"	20'-10"	25'-9"	23'-10"	22'-9"	21'-6"
	NI-80	25'-6"	23'-6"	22'-4"	21'-2"	26'-1"	24'-2"	23'-1"	21'-10"
	NI-90x	26'-4"	24'-3"	23'-1"	21'-10"	26'-11"	24'-11"	23'-8"	22'-5"

Depth	Series	Mid-Span Blocking				Mid-Span Blocking and 1/2" Gypsum Ceiling			
		On Centre Spacing				On Centre Spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	16'-10"	15'-5"	14'-6"	13'-5"	16'-10"	15'-5"	14'-6"	13'-5"
	NI-40x	18'-8"	17'-2"	16'-3"	15'-2"	18'-10"	17'-2"	16'-3"	15'-2"
	NI-60	18'-11"	17'-6"	16'-6"	15'-5"	19'-2"	17'-6"	16'-6"	15'-5"
	NI-70	20'-0"	18'-7"	17'-9"	16'-7"	20'-5"	18'-11"	17'-10"	16'-7"
	NI-80	20'-3"	18'-10"	17'-11"	16'-10"	20'-8"	19'-3"	18'-2"	16'-10"
11-7/8"	NI-20	20'-1"	18'-5"	17'-5"	16'-2"	20'-1"	18'-5"	17'-5"	16'-2"
	NI-40x	21'-10"	20'-4"	19'-4"	17'-8"	22'-5"	20'-6"	19'-4"	17'-8"
	NI-60	22'-1"	20'-7"	19'-7"	18'-4"	22'-8"	20'-10"	19'-8"	18'-4"
	NI-70	23'-4"	21'-8"	20'-8"	19'-7"	23'-10"	22'-3"	21'-2"	19'-9"
	NI-80	23'-7"	21'-11"	20'-11"	19'-9"	24'-1"	22'-6"	21'-5"	20'-0"
14"	NI-90x	24'-3"	22'-6"	21'-6"	20'-4"	24'-8"	23'-0"	22'-0"	20'-9"
	NI-40x	24'-5"	22'-9"	21'-8"	19'-5"	25'-1"	23'-2"	21'-9"	19'-5"
	NI-60	24'-10"	23'-1"	22'-0"	20'-10"	25'-6"	23'-8"	22'-4"	20'-10"
	NI-70	26'-1"	24'-3"	23'-2"	21'-10"	26'-8"	24'-11"	23'-9"	22'-4"
	NI-80	26'-6"	24'-7"	23'-5"	22'-2"	27'-1"	25'-3"	24'-1"	22'-9"
16"	NI-90x	27'-3"	25'-4"	24'-1"	22'-9"	27'-9"	25'-11"	24'-8"	23'-4"
	NI-60	27'-3"	25'-5"	24'-2"	22'-10"	28'-0"	26'-2"	24'-9"	23'-1"
	NI-70	28'-8"	26'-8"	25'-4"	23'-11"	29'-3"	27'-4"	26'-1"	24'-8"
	NI-80	29'-1"	27'-0"	25'-9"	24'-4"	29'-8"	27'-9"	26'-5"	25'-0"
	NI-90x	29'-11"	27'-10"	26'-6"	25'-0"	30'-6"	28'-5"	27'-2"	25'-8"

- Maximum clear span applicable to simple-span residential floor construction with a design live load of 40 psf and dead load of 15 psf. The ultimate limit states are based on the factored loads of 1.50L + 1.25D. The serviceability limit states include the consideration for floor vibration, a live load deflection limit of L/480 and a total load deflection limit of L/240.
- Spans are based on a composite floor with glued-nailed oriented strand board (OSB) sheathing with a minimum thickness of 3/4 inch for a joist spacing of 24 inches or less. The composite floor may include 1/2 inch gypsum ceiling and/or one row of blocking at mid-span with strapping. Strapping shall be minimum 1x4 inch strap applied to underside of joists at blocking line or 1/2 inch gypsum ceiling attached to joists.
- Minimum bearing length shall be 1-3/4 inches for the end bearings.
- Bearing stiffeners are not required when I-joists are used with the spans and spacings given in this table, except as required for hangers.
- This span chart is based on uniform loads. For applications with other than uniformly distributed loads, an engineering analysis may be required based on the use of the design properties. Tables are based on Limit States Design per CSA O86-09, NBC 2010, and OBC 2012.
- Joists shall be laterally supported at supports and continuously along the compression edge. Refer to technical documentation for installation guidelines and construction details. Nordic I-joists are listed in CCMC evaluation report 13032-R and APA Product Report PR-L274C.

Maximum Floor Spans

Live Load = 40 psf, Dead Load = 30 psf
Simple Spans, L/480 Deflection Limit
5/8" OSB G&N Sheathing



Depth	Series	Bare				1/2" Gypsum Ceiling			
		On Centre Spacing				On Centre Spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	15'-1"	14'-1"	13'-3"	N/A	15'-7"	14'-1"	13'-3"	N/A
	NI-40x	16'-1"	15'-2"	14'-8"	N/A	16'-7"	15'-7"	15'-1"	N/A
	NI-60	16'-3"	15'-4"	14'-10"	N/A	16'-8"	15'-9"	15'-3"	N/A
	NI-70	17'-1"	16'-1"	15'-6"	N/A	17'-5"	16'-5"	15'-10"	N/A
	NI-80	17'-3"	16'-3"	15'-8"	N/A	17'-8"	16'-7"	16'-0"	N/A
11-7/8"	NI-20	16'-11"	16'-0"	15'-5"	N/A	17'-6"	16'-6"	16'-0"	N/A
	NI-40x	18'-1"	17'-0"	16'-5"	N/A	18'-9"	17'-6"	16'-11"	N/A
	NI-60	18'-4"	17'-3"	16'-7"	N/A	19'-0"	17'-8"	17'-1"	N/A
	NI-70	19'-6"	18'-0"	17'-4"	N/A	20'-1"	18'-7"	17'-9"	N/A
	NI-80	19'-9"	18'-3"	17'-6"	N/A	20'-4"	18'-10"	17'-11"	N/A
	NI-90x	20'-4"	18'-9"	17'-11"	N/A	20'-10"	19'-3"	18'-5"	N/A
14"	NI-40x	20'-1"	18'-7"	17'-10"	N/A	20'-10"	19'-4"	18'-6"	N/A
	NI-60	20'-5"	18'-11"	18'-1"	N/A	21'-2"	19'-7"	18'-9"	N/A
	NI-70	21'-7"	20'-0"	19'-1"	N/A	22'-3"	20'-7"	19'-8"	N/A
	NI-80	21'-11"	20'-3"	19'-4"	N/A	22'-7"	20'-11"	20'-0"	N/A
	NI-90x	22'-7"	20'-11"	19'-11"	N/A	23'-3"	21'-6"	20'-6"	N/A
16"	NI-60	22'-3"	20'-8"	19'-9"	N/A	23'-1"	21'-5"	20'-6"	N/A
	NI-70	23'-6"	21'-9"	20'-9"	N/A	24'-3"	22'-5"	21'-5"	N/A
	NI-80	23'-11"	22'-1"	21'-1"	N/A	24'-8"	22'-10"	21'-9"	N/A
	NI-90x	24'-8"	22'-9"	21'-9"	N/A	25'-4"	23'-5"	22'-4"	N/A

Depth	Series	Mid-Span Blocking				Mid-Span Blocking and 1/2" Gypsum Ceiling			
		On Centre Spacing				On Centre Spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	15'-7"	14'-1"	13'-3"	N/A	15'-7"	14'-1"	13'-3"	N/A
	NI-40x	17'-9"	16'-1"	15'-1"	N/A	17'-9"	16'-1"	15'-1"	N/A
	NI-60	18'-1"	16'-4"	15'-4"	N/A	18'-1"	16'-4"	15'-4"	N/A
	NI-70	19'-2"	17'-10"	16'-9"	N/A	19'-7"	17'-10"	16'-9"	N/A
	NI-80	19'-5"	18'-0"	17'-1"	N/A	19'-10"	18'-3"	17'-1"	N/A
11-7/8"	NI-20	18'-9"	17'-0"	16'-0"	N/A	18'-9"	17'-0"	16'-0"	N/A
	NI-40x	21'-0"	19'-3"	17'-9"	N/A	21'-3"	19'-3"	17'-9"	N/A
	NI-60	21'-4"	19'-8"	18'-5"	N/A	21'-8"	19'-8"	18'-5"	N/A
	NI-70	22'-6"	20'-10"	19'-11"	N/A	23'-0"	21'-4"	20'-0"	N/A
	NI-80	22'-9"	21'-1"	20'-1"	N/A	23'-3"	21'-7"	20'-5"	N/A
	NI-90x	23'-4"	21'-8"	20'-8"	N/A	23'-10"	22'-2"	21'-2"	N/A
14"	NI-40x	23'-7"	21'-5"	19'-6"	N/A	24'-1"	21'-5"	19'-6"	N/A
	NI-60	24'-0"	22'-3"	21'-0"	N/A	24'-8"	22'-5"	21'-0"	N/A
	NI-70	25'-3"	23'-4"	22'-3"	N/A	25'-10"	24'-0"	22'-9"	N/A
	NI-80	25'-7"	23'-8"	22'-7"	N/A	26'-2"	24'-4"	23'-2"	N/A
	NI-90x	26'-4"	24'-4"	23'-3"	N/A	26'-10"	24'-11"	23'-9"	N/A
16"	NI-60	26'-5"	24'-6"	23'-4"	N/A	27'-2"	24'-10"	23'-4"	N/A
	NI-70	27'-9"	25'-8"	24'-6"	N/A	28'-5"	26'-5"	25'-2"	N/A
	NI-80	28'-2"	26'-1"	24'-10"	N/A	28'-10"	26'-9"	25'-6"	N/A
	NI-90x	29'-0"	26'-10"	25'-7"	N/A	29'-7"	27'-5"	26'-2"	N/A

- Maximum clear span applicable to simple-span residential floor construction with a design live load of 40 psf and dead load of 30 psf. The ultimate limit states are based on the factored loads of 1.50L + 1.25D. The serviceability limit states include the consideration for floor vibration, a live load deflection limit of L/480 and a total load deflection limit of L/240.
- Spans are based on a composite floor with glued-nailed oriented strand board (OSB) sheathing with a minimum thickness of 5/8 inch for a joist spacing of 19.2 inches or less. The composite floor may include 1/2 inch gypsum ceiling and/or one row of blocking at mid-span with strapping. Strapping shall be minimum 1x4 inch strap applied to underside of joists at blocking line or 1/2 inch gypsum ceiling attached to joists.
- Minimum bearing length shall be 1-3/4 inches for the end bearings.
- Bearing stiffeners are not required when I-joists are used with the spans and spacings given in this table, except as required for hangers.
- This span chart is based on uniform loads. For applications with other than uniformly distributed loads, an engineering analysis may be required based on the use of the design properties. Tables are based on Limit States Design per CSA O86-09, NBC 2010, and OBC 2012.
- Joists shall be laterally supported at supports and continuously along the compression edge. Refer to technical documentation for installation guidelines and construction details. Nordic I-joists are listed in CCMC evaluation report 13032-R and APA Product Report PR-L274C.